ABSTRACT

Title of Thesis: HELLO INTERNET! – AN ONLINE STARTING POINT FOR ADULT DIGITAL LITERACY LEARNERS

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While physical access to information technology is critical to actively engaging and participating in an increasingly digital society, having physical access alone is not enough as people need the skills necessary to use the technology to reap its benefits. Teaching adults how to use technology is a challenge that public libraries in the United States are currently confronting through various methods. This paper explores how American public libraries can use an online starting point to help adult patrons learn and practice basic Internet skills. In the case study presented in this report, an online starting point called *Hello Internet!* was created and tested over the course of three stages at the District of Columbia Public Library.

HELLO INTERNET! – AN ONLINE STARTING POINT FOR ADULT DIGITAL LITERACY LEARNERS

By

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CHAPTER 1: PROBLEM STATEMENT

1.1. Problem Statement

In the Information Age, knowing how to use information and communication technologies is critical to engaging as an active citizen in modern American society. In the United States, much attention has been paid to the digital divide in terms of physical access, but as more Americans gain access to the Internet, training Americans how to effectively use the information and communication technologies available to them also requires attention. A 2014 national study assessed that 70 million Americans lacked digital literacy skills[1].

Public and private organizations have worked to help Americans gain digital literacy skills through using a variety of different methods. Of these organizations, American public libraries play a significant role in digital literacy education. Libraries serve as a starting point in the journey for many Americans towards becoming digitally literate citizens by offering a variety of assistance to patrons within the physical walls of the library. In the digital realm, libraries have begun posting guides and resources for patrons to gain new digital literacy skills as more patrons access library resources online.

In order for patrons to use these library resources in addition to the multitude of external online learning resources, patrons first need basic digital literacy skills. A majority of libraries offer training opportunities at the physical library, and some libraries provide online resources on basic Internet skills such as using a search engine or navigating a website. However, a vast majority of these resources are static walkthroughs and guides that explain how to perform a skill but do not provide guidance or feedback as learners practice the skill themselves. Through providing an online interactive starting point for digital literacy education, American public libraries can offer more opportunities to train adult learners without basic digital literacy skills to become active citizens in modern digital society.

1.2. Research Question

This study aims to the answer the following research question:

> How can American public libraries provide an online interactive starting point for learning and practicing basic Internet skills for adult learners without basic digital literacy skills?

CHAPTER 2: LITERATURE REVIEW

2.1. Digital Literacy

In the United States, public libraries play a significant role in cultivating digital literacy across diverse populations. Digital literacy describes the knowledge and understanding needed to operate in an Information Age through using information technology. The American Library Association's Digital Literacy Task Force defines digital literacy as "the ability to use information and communication technologies to find, understand, evaluate, create, and communicate digital information, an ability that requires both cognitive and technical skills"[2].

Modern American society is dependent upon information and communication technologies. This dependency can be seen in the private sector, the government, and in education. In the private sector, according to survey of American small businesses in 2012, 87% of businesses have at least one employee using the Internet as a part of their routine job responsibilities[3]. 80% of Fortune 500 companies only accept job applications submitted online[4].

The United States government has become increasing dependent upon information and communication technologies to offer services to citizens. The Internal Revenue Service and many states allow individuals to file tax returns for free[4]. As of September 2014, nearly 7.3 million Americans have enrolled in health insurance plans through the online health care exchanges established by the Affordable Care Act[5].

The educational space is also dependent on information and communication technologies. In K-12 education, 4 million American students participated in at least one online course offered by platforms such as Khan Academy during 2010[6]. In 2011, the top four universities in the United States that awarded the most bachelor and graduate degrees were all universities that operated entirely online[7]. The increasing popularity of massive open online courses offered through platforms such as M.I.T. and Harvard's edX allow people across the globe to take courses freely from premiere American academic programs[8]. If Americans lack digital literacy skills, they will be unable to actively engage in society, thus not only limiting their opportunities as individuals but also limiting the country's future.

2.2. American Public Libraries

While digital literacy is closely tied to technology, digital literacy itself is a part of how literacy has evolved over the past 3,000 years[9]. Since the days of the American colonies, libraries have helped inform and educate citizens in the needed literacy skills of the time. In the 21st century, this role has not changed. With over 120,000 libraries serving schools and the public across the United States, libraries provide their patrons with the access to technology and necessary training to succeed in the Information Age.

In terms of access to technology, a majority of libraries in the United States are the sole providers of public computer and Internet access in their communities[10]. In 2013, all American public libraries provided public access to computers and the Internet. Public libraries averaged 20.2 public access desktops or laptops. Urban libraries averaged Internet download speeds faster than 100 Mbps while rural public libraries averaged 21 Mbps[11].

In terms of training, in 2013, nearly 100% of American public libraries provided digital literacy training to patrons. These types of training include formal training classes, individual training appointments, informal support, and online training material. Informal training is more common for general computing skills like learning how to use the Internet while formal training is more common for specialized skills like website development. Urban libraries are more likely to provide formal digital literacy training than suburban, town, or rural libraries. 77.6% of urban libraries provided formal digital literacy training[11].

2.3. Adult Learners

A 2014 national study assessed that 70 million Americans lacked basic digital literacy skills[1]. To acquire basic digital literacy skills, many adult learners go to the library for assistance. According to a demographic analysis of library computer users in the United States, library patrons that use library computers resemble the American public in age, education, and access to computers and the Internet. The working poor, people of mixed race, men, and people who do not speak English as a first language accessed the Internet in the library the most frequently. Even though a majority of patrons had computer and Internet access at home, users visited the library for their information needs due to the wealth of resources the libraries provides[12].

Individual and formal help for digital literacy skills are often provided by libraries to its patrons. According to a 2010 national library survey, 67% of library computer users received assistance from a library staff member. These users tended to be older the age of 75, women, did not speak English as a first language, and earned 300% below the US poverty guidelines. The most frequent individual help topics included using computer equipment, using library website, printing or saving files, finding a specific website, using office programs, and connecting to the library's wireless network. 14% of library computer users received training in formal classes held at the library. These users tended to be non-Caucasian, held educational degree below high school or two year college degree, older than the age of 75, and did not speak English as a first language[13].

Though accessing library resources through the library's public access computers is still common, a growing trend is accessing these same resources online and through using mobile devices. A survey conducted by the Pew Research Center in 2012 discovered that 25% of Americans ages 16 and older have visited a library's website within the year. 13% of survey respondents have used a mobile device to access the library's website or services[14]. Some

libraries are responding to the mobile web's growth by optimizing the library website for mobile screens and creating mobile library apps[15]. Mobile access is becoming a significant part of a library's strategy to reach patrons as young adults, Black and Hispanic adults, and low-income adults are more likely to use their mobile devices as their primary means of accessing the Internet[16].

2.4. Online Resources For Digital Literacy Training

A number of libraries across the United States have posted resources on their websites to help users gain digital literacy skills. To understand what libraries have already posted, a brief survey of the offerings from select libraries across the nation has been completed. Two groups emerged – libraries that offered their own tutorials and libraries that offered repositories of training documents.

2.4.1. Online Tutorials

2.4.1.1. DigitalLearn.org

DigitalLearn.org is a website created by the Public Library Association as part of an Institute of Museum and Library Services grant-funded project to create an online repository for literacy support and training[17]. For digital literacy learners, DigitalLearn.org offers a series of classes teaching basic digital literacy skills such as using a computer, using a search engine, how to email, and how to find jobs online[18]. Each class is a video tutorial that is divided into smaller sections. In each section's video, the narrator guides the user through a real world task applying the skill. In the case of the basic search class, the task was to learn more information about Chicago for an upcoming trip using Google's search engine. Users are tested on their understanding by clicking on certain areas of the screen, but users do not have the opportunity to practice the skills realistically. For example, for basic search, one assessment question was to locate where users can enter search terms when searching Google using Internet Explorer as shown in the figure below[19].

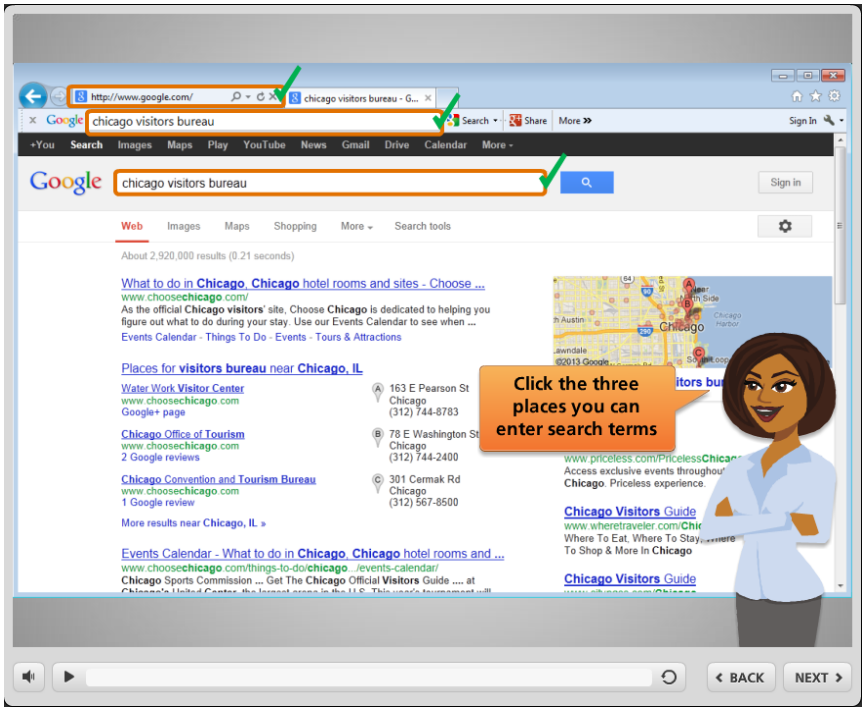


Figure 1. DigitalLearn.org Basic Search Assessment[19]

2.4.1.2. Libraries Linking Idaho – Online @ Your Library

Libraries Linking Idaho (LiLI) serves the people of Idaho with networked library services. One of the services provided by LiLI is an online media literacy program called Online @ Your Library[20]. This program is an online tutorial that offers four units on gaining media literacy skills for digital literacy novices, which include digital literacy skills such as searching the Internet and navigating a web page. Each unit is divided into lessons, and the lessons feature a YouTube video explaining the skill and an exercise to practice the skill. No feedback is provided to the user that the practice exercise is completed correctly[21]. The figure below shows a representation of the anatomy of a website lesson.

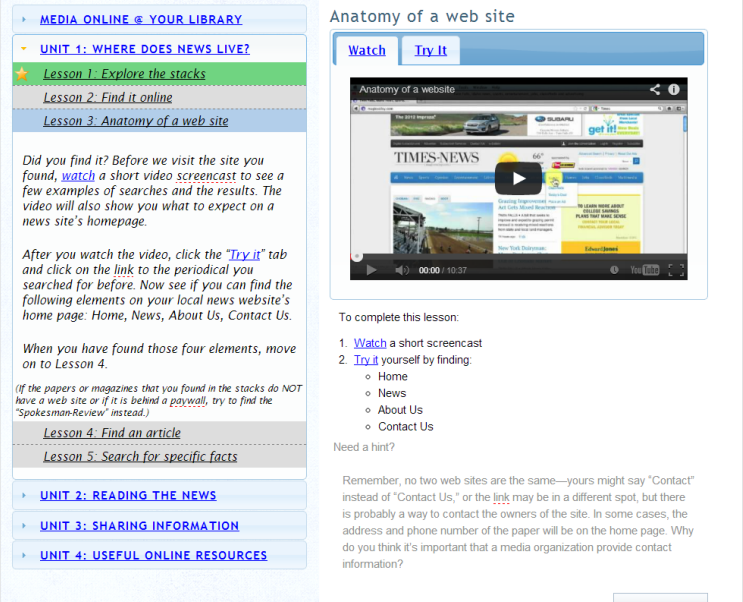


Figure 2. LiLI Online @ Your Library Anatomy of a Website[21]

2.4.1.3. The Library Network

The Library Network is a public library cooperative in southeast Michigan. Consisting of 65 libraries, the Library Network provides services to all member libraries through collaboration. The Library Network created an online tutorial to teach new users how to use a computer[22]. The tutorial created was based on similar tutorials developed by the Washoe County Nevada Library System, the Central Kansas Library System, and the Palm Beach County Library System. The online tutorial has the user complete a series of tasks to learn more about the mouse, the scroll bars, form input elements, popup windows, and opening applications[23]. An example screen from the tutorial is shown in the figure below.

Figure 3. The Library Network – New User Tutorial[23]

2.4.2. Online Repositories

2.4.2.1. Digital Literacy in New York

The New York Library Association and New York State Office of Cyber Security created the Digital Literacy in New York website to help create standard curricula for teaching digital literacy skills. As such, the Digital Literacy in New York website is a repository for students and trainers to access documents such as lesson plans, presentations, quizzes, and handouts related to learning and teaching basic computer skills, Internet skills, and Microsoft Word skills. Links are also provided to the general public for additional external digital literacy resources that can be used to gain more skills[24]. The figure below shows the repository of information available to digital literacy learners.

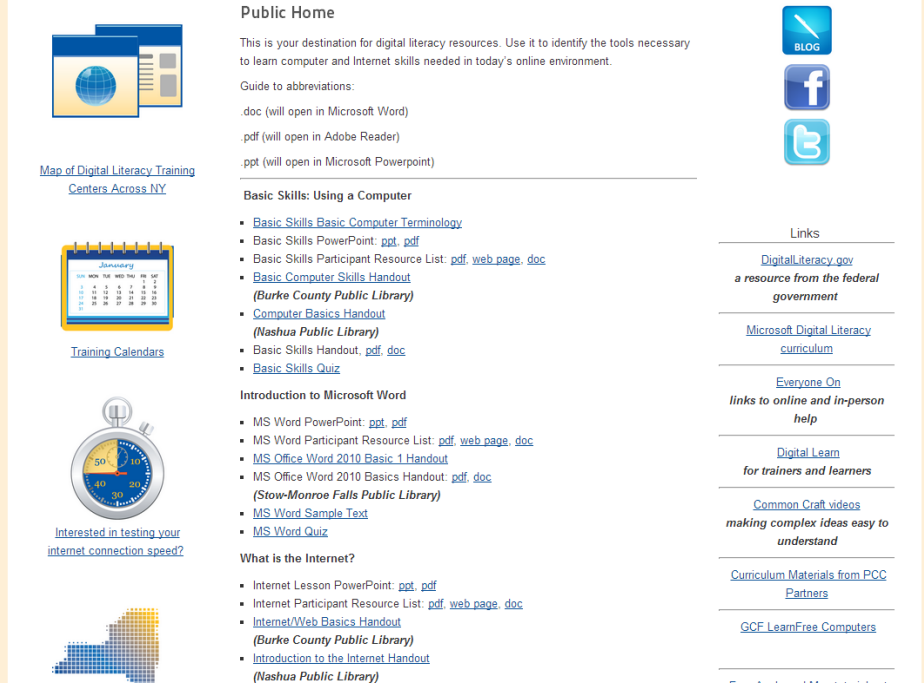


Figure 4. Digital Literacy in New York Public Home[25]

2.4.2.2. Washington State Library

The Washington State Library provides a repository of external resources covering topics such as basic and advanced computing skills and protecting users from online thieves, predators, and other threats[26]. A representation of this repository can be found in the figure below.

Figure 5. Washington State Library's Digital Literacy Resources for the Public[26]

2.4.2.3. Houston Public Library WeCAN

At the Houston Public Library, a program called the Wireless Empowered Community Access Network or WeCAN works to provide the people of Houston, Texas with digital literacy education. One way that WeCAN achieves its objective is by providing a community resource portal where learners can find out when digital literacy classes are being held and can access training materials such as presentations and assessments for each class. Classes range from computer and Internet basics to digital photography and computer security[27]. A representation of this resource portal can be seen in the figure below.

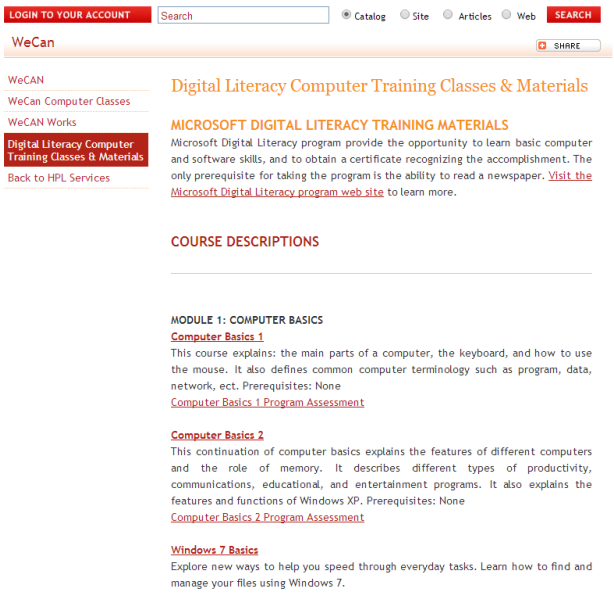


Figure 6. WeCAN Community Resource Portal[28]

2.4.2.4. Maine State Library

The Maine State Library's website provides a repository of over 50 resources, courses, and webinars from external sources. The website allows learners to search the resources by digital literacy topic[29]. The figure below shows a sample of the resources that the Maine State Library provides to users.

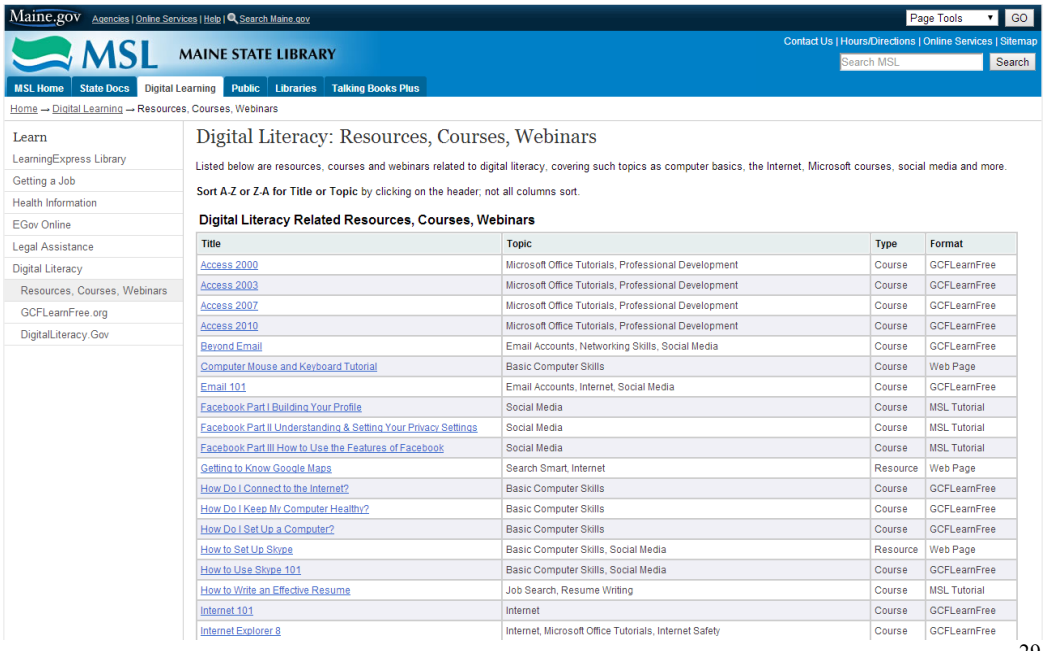


Figure 7. Maine State Library Digital Literacy: Resources, Courses, Webinars[29]

2.5. Online Interactive Starting Point

While both the online tutorials and online repositories provide valuable information to users learning digital literacy skills, these approaches lack the ability for learners practice the skills and receive feedback on their performance. Online learning platforms such as Khan Academy and Codecademy allow beginner learners to practice skills and receive feedback in a wide variety of skills with a great degree of success. Khan Academy attracts over 10 million global users and offers over 5,000 courses[30]. Khan Academy's course format is to present small sections of course material at a time where learners watch a video and then complete an automatically graded exercise to practice the skill. Learners can complete the course at their own pace[31]. Codecademy follows a similar format but specifically targets teaching computer program languages. In 2013, 24 million unique visitors logged into Codecademy to learn computer programming languages[32].

In June 2013, the American Library Association's Digital Literacy Task Force recognized both the responsibility that libraries have as a provider of necessary digital literacy skills and the need for further research to understand how nontraditional learning approaches can be used to teach digital literacy skills[33]. This thesis aims to blend the nontraditional approaches used by online platforms such as Khan Academy and Codecademy for how American public libraries can provide online starting points for digital literacy education.

CHAPTER 3: METHODOLOGY

3.1. Methodology Background

This study used case study as the research method to answer the research question stated above. Using an interactive online starting point for digital literacy has not been widely utilized by libraries making this study exploratory in nature. The primary investigator used the District of Columbia Public Library (DCPL) as the critical case in the case study. The primary investigator has a relationship with the DCPL as a volunteer computer instructor teaching digital literacy skills to adult patrons for the past three years. The DCPL has 25 branches and serves over 500,000 people living in Washington, D.C. The DCPL currently has the schedule of computer classes held at the library every month posted on its website[34].

As a part of executing this case study, a prototype for an interactive online starting point for beginner adult digital literacy learners was created for use at the DCPL. To build the prototype and answer this study's research question, this study's research activities were divided into three stages. The methodology of these stages and the research activities are provided below. As the research activities conducted during the study required social interaction, this study received IRB approval before the research activities are implemented. Please view Appendix A for a copy of the IRB approval document.

3.2. Stage 1: Stakeholder Requirements

Building an online starting point for digital literacy at the DCPL involved many different stakeholders. Before the prototype was created, the needs and perspectives of these stakeholders needed to be understood. The stakeholders deemed relevant to this study were the DCPL library staff involved with the computer class program, DCPL volunteer computer instructors who have preferably taught a PC Basics and/or Web I Basics course, and DCPL adult learners who were taking the PC Basics and Web I Basics courses.

To collect the needs and perspectives of these relevant stakeholders, two research activities were completed – a semi-structured interview and a survey. Semi-structured interviews took place with library staff and volunteer computer instructors aimed towards understanding the requirements of an online starting point and what features they would include given their experience working with adult learners. The planned basic Internet skills that adult learners would be able to learn and practice for the initial prototype concept included the following:

- Using a search engine like Google to learn and practice searching for information.
- Navigating a website using the DCPL's website as a guide
- Completing an online web form using an online job application as a guide

The inclusion of these skills was verified during the interview. Purposive non-probability sampling was used to obtain interview participants. The semi-structured interview questions are included in Appendix B.

Surveys were issued to the adult learners participating in the DCPL Web I Basics computer classes. The goal of the survey questions was to understand the needs and perspectives of the adult learners for an online starting point. Computer classes were offered several times a month, and the surveys were issued to class attendees over the span of a month. As a normal part of the computer classes at the DCPL, students are asked to complete a survey rating the class. The familiarity of filling out surveys helped to boost the survey's response rate. Purposive non-probability sampling was used to obtain survey responses. The survey protocol is included in Appendix B.

3.3. Stage 2: Iterative Prototype Development

After the information in Stage 1 was collected and analyzed, development on the prototype for the online starting point began. The technology used to implement the prototype depended on the requirements collected by the stakeholders and required its own analysis of each technology option's strengths and weaknesses. The technology needed to support multiple screen sizes in response to the popularity of mobile web devices. This prototype needed to be Section 508 compliant so users of all abilities could use the prototype.

Once the technology was selected, the prototype was created using an iterative software development process. Not all of the collected requirements were implemented at once. Multiple cycles of analysis, design, implementation, unit testing, and stakeholder feedback were necessary to ensure that the prototype worked properly and met stakeholder expectations. In this stage, the primary stakeholders were DCPL staff and volunteer computer instructors. Receiving feedback iteratively helped to improve the quality of prototype before the next phase. All iterative feedback sessions were held at the DCPL. The stakeholder iterative feedback protocol is included in Appendix C.

3.4. Stage 3: Prototype Evaluation

After completing the prototype, user testing was performed the adult learners taking a class for the online starting point prototype called *Hello Internet!*. Each class was structured in the same way. Users were asked to complete a survey at the beginning of the class to assess their past experience with computers, the Internet, and the DCPL. Then, users explored the online starting point prototype to learn about the Internet and the World Wide Web. Finally, users were given a survey to provide their perspectives on the online starting point prototype based on the USE Questionnaire. The USE Questionnaire was developed by Arnold Lund to measure the usefulness, satisfaction, and ease of use of a software application[35]. The user testing surveys are included in Appendix D.

CHAPTER 4: STAGE 1 RESULTS

4.1. Interview and Survey Execution

To gather the needs and perspectives of this study's stakeholders in Stage 1, a series of surveys and interviews were conducted at the Martin Luther King, Jr. branch of the DCPL starting on July 29, 2014 and ending on August 14, 2014. To identify and help schedule surveys and interviews with potential stakeholders, the primary investigator worked with the DCPL Customer Training Coordinator. Interviewed DCPL volunteer computer instructors and library staff members were first approached over email while surveyed DCPL patrons were approached during the computer class that they were attending. Stage 1 advertisements sent to these stakeholders can be viewed in the Appendix B.

Before data collection began using the surveys and interviews, 8 stakeholders were identified and confirmed to be interviewed and 5 computer classes were identified and confirmed to be surveyed. Of these confirmations, 7 stakeholders were interviewed as one DCPL volunteer computer instructor was unable to attend, and all 5 computer classes were surveyed.

4.2. Stage 1 Interview Findings

4.2.1. Stakeholder Backgrounds

The DCPL volunteer computer instructors and the DCPL staff members all had relevant experiences related to teaching adults to use the Internet. All interviewed DCPL volunteer computer instructors had experience teaching basic Internet skills to patrons.

Of the DCPL staff members interviewed, four programs and departments were represented. The DCPL Volunteer Computer Program was represented because this program runs the computer classes for library patrons to learn basic computer and Internet skills. The Adaptive Services department was represented to provide insights into how users with accessibility needs learn how to use the Internet and how the online prototype should be designed for users of all abilities. The Adult Literacy department was represented due to their experience with adult literacy education and the recent decision to move the GED test from a paper and pencil test to an online test. This decision impacts the Adult Literacy department by having to help patrons learn computer and Internet skills in addition to preparing patrons for the subjects in the GED test. The Digital Commons was represented because the Digital Commons is a part of the DCPL that introduces patrons to innovative and new technology through hosting classes for patrons to learn how to use this technology.

A brief summary of the stakeholders interviewed is provided in the table below.

Interview Stakeholder	Number of Interviews
DCPL Volunteer Computer Instructors	3
DCPL Staff Members from the Volunteer Computer Program, Adaptive Services, Adult Literacy, and Digital Commons	4
Total	**7**

Table 1. Stage 1 Interview Stakeholder Summary Information

4.2.2. Interview Results

After conducting 7 interviews with DCPL volunteer computer instructors and DCPL staff members, analysis was conducted on this interview data to identify unifying themes and potential new features to add to the prototype. The results of this analysis are summarized in the sections below. The notes taken during the interviews can be found in Appendix B.

4.2.2.1. Unifying Themes

Over the course of 7 interviews, certain themes emerged. Some themes were expressed by all stakeholders while other themes were only expressed by DCPL volunteer computer instructors or DCPL staff members. The themes identified and the stakeholders who expressed these perspectives are detailed below.

The Need for Basic Computer Skills

DCPL staff members and DCPL volunteer computer instructors both recognized the importance of having basic computer skills before being able to learn basic Internet skills. Having basic computer skills was cited as a frequent challenge for adult learners who want to learn how to use the Internet. The stakeholders interviewed had different strategies for assisting learners who needed basic skills including one on one help with learners, referring learners to places where they can learn the skills they need such as the DCPL's PC Basics computer class, and providing resources for learners to sharpen their skills such as the mouse games on the DCPL computers and typing games online.

Repetition As a Key to Success for Learners

All stakeholders interviewed expressed the importance of repetition for adult learners learning skills. One DCPL staff member encourages adult learners to take computer classes multiple times to not only learn the skills again but to learn the skills from a different trainer or volunteer computer instructor.

"Everyone is somebody's trainer, but a trainer is not everyone's trainer."

One DCPL volunteer computer instructor emphasized the importance of repetition. Before a class, the instructor teaches begins to explain why the instructor can do these skills.

> The instructor starts each class by "explaining why [the instructor] teaches the class, why the skills are important, why [the instructor] is good at these skills because [the instructor] does them every day, and asks the class why they are here" if the class is small enough.

Another DCPL volunteer computer instructor encourages students during class to keep coming back if they are at a lower skill level than the rest of the class.

> Classes tend to have different skill levels. If a user has basic navigation challenges, the DCPL instructor asks the student "to just follow along and keep coming back."

After class, another DCPL volunteer computer instructor makes an effort to expose learners to resources that can help them continue practicing outside of the classroom. One of the most important of these resources is Windows Help.

> A major point of emphasis is providing opportunities for learners "to continue learning outside of the classroom." The F1 key is important to get help with anything in Windows and to also know to use the suggestions or use key terms to search.

Connecting Skills with Experience

All DCPL volunteer computer instructors described how connecting the skills taught in the classroom with the experience of the students as helping the skills resonate with students. According to one DCPL staff member, lacking relatable experiences with computers makes learning computers more challenging.

> "Having no conceptual experience of computers makes learning the skills harder." The staff member's mother had experience creating documents in her federal job, so she was able to apply her knowledge of documents to her learning the computer and how to create documents using word processing software.

A DCPL volunteer computer instructor expressed that the instructor likes "to connect skills with the experience that learners may have." Another instructor stated that the instructor often asks the learners why they are taking to class to connect what they want to learn with what is being taught in the class. Another instructor uses the instructor's past experience as a student taking the DCPL computer classes to connect learners with the skills taught.

The Digital Commons connects skills in a different way by providing a new experience for adult learners to connect with. According to one DCPL staff member,

> The Digital Commons empowers patrons by showing them what is possible such as 3-D printing. The 3-D printer and other technologies are powerful advertisements that get patrons hooked and wanting to know more about computers.

After seeing what is possible, students are often excited to learn more.

Accessibility Concerns

DCPL staff members and DCPL volunteer computer instructors discussed the importance of accessibility in how all users can get the most out of the technology they are learning. The following comments were made by DCPL volunteer computer instructors and staff members in relation to accessibility concerns. Being able to see the screen and using the keyboard and mouse were the most citied accessibility concerns.

> "General accessibility" is an issue where vision and fine motor movements can be a problem for adult learners. Finding the settings to change font size for example is not obvious.

> Many of the issues adult learners face involve the mechanics of using the hardware. To avoid the confusion of double clicking, the coordinator tells "the user to click once and then press Enter." Eye coordination is often a contributing factor to the mechanics issues.

> "A large part of the web is not accessible" which is a large obstacle for new learners to overcome. Screen accessibility software is dependent on the websites in how well they conform to the standards.

Defining Terminology

DCPL volunteer computer instructors and staff members mentioned the importance of adult learners understanding the correct terminology. One DCPL staff member often starts the computer classes by introducing the terminology so that learners can leave the class and talk intelligently about computers with others in the community.

> The staff member's basic procedure for teaching classes is to introduce the terminology first by "touching it, naming it, and defining it." It is important to call the concepts by their official name – for example, there are four names for the computer.

While a DCPL volunteer computer instructor was at first skeptical about the importance of defining terminology for adult learners rather than emphasizing functionality, the instructor found that defining terminology provided context and allowed learners to ask clearer questions.

Inside the Classroom Obstacles for Adult Learners

DCPL staff members and volunteer computer instructors illustrated the obstacles that computer and Internet adult learners face inside the classroom. According DCPL staff members,

adult learners experience a vicious circle where they were never taught computer and Internet skills in the first place and then later in life are intimidated by using this technology when they are forced to such as getting health care or applying for a job. The technology becomes even more daunting to learn if adult learners have accessibility issues such as trouble viewing the screen or using the mouse.

Once at the library seeking help, adult learners most frequently need confidence and focus to learn the skills they need to apply. As described by a DCPL staff member,

> When users come to the library to learn a skill, chances are that they are already "frustrated and understand that there is a barrier." However, they think that they have to "climb over the barrier" when all they need to do is "step over the barrier."

One DCPL volunteer computer instructor echoes the same sentiment as the staff member above and offers a way to help learners step over the barrier.

> Obstacles that adult learners face include "a lack of confidence and lack of understanding of what you can do using the Internet." The DCPL Computer Volunteer Instructor has learners "focus on the task" and one thing at a time. By focusing, learners can "gain confidence."

Helping learners gain confidence underscores one DCPL staff member's challenge in helping adults prepare for the GED. Like Internet skills, GED skills can be complex and require teachers to find ways to get concepts across to students that are understandable and also provide them with the confidence to keep learning.

> The largest challenge teaching adult learners new skills is "how to break down advanced skills" and "how to quickly teach skills that learners need so they feel that they are achieving something. Retention is hard in adult literacy. More rigorous tests and computer tests have forced people to stay in school longer. How do you get people to stay?"

As mentioned by both types of stakeholders, repetition is a key for adult learners to learn new skills by gaining the confidence and focus necessary through practice.

Outside the Classroom Obstacles for Adult Learners

DCPL staff members and DCPL volunteer computer instructors conveyed the challenges that computer and Internet adult learners face outside of the classroom. According to the interviews, many DCPL adult learners do not have a computer at home to practice with that has an Internet connection. According to a DCPL staff member, this physical component of the digital divide prevents learners from putting in the time necessary to gain the skills. One DCPL volunteer computer instructor who was once a past student often "stayed at the library from 9:00am to 9:00pm taking classes."

For the students who have the physical means to access a computer and the Internet, a different set of challenges are often present. As discussed by one DCPL volunteer computer instructor, not understanding how to pay for service, service bandwidth limits, virus and safety protection, and what to do when a computer freezes up other than purchase a new computer can be costly lessons for new learners.

4.2.2.2. Potential New Features

One of the purposes of the interviews was to elicit ideas for developing and improving the online prototype. Over the course of the 7 interviews, several features for the online prototype were collected and stored in a spreadsheet. In the spreadsheet, all features were given a title, description, estimate of how much effort it would take to create the feature, and how important the feature is as later determined in Stage 2 with DCPL stakeholders. These features and the process for adding features in the online prototype is described in greater detail in the Stage 2 section of this report.

Some of the features identified during the interview phase are listed below. For a complete listing, please consult Appendix B.

- Adding keyboard shortcuts to lesson information (ex. How to open a tab in an Internet browser)
- Adding information about Internet Security
- Adding a section in the Online Forms section to describe how drag and drop works
- Adding a lesson describing how an email account works

4.3. Stage 1 Surveys

4.3.1. Stakeholder Backgrounds

Of the computer classes surveyed, two types of classes were identified before Stage 1 – PC Basics and Web I Basics. PC Basics focuses more on basic computer skills such as how to use a mouse, how to use a keyboard, and how to do basic tasks in Windows but does also include learning a few Internet skills such as what an Internet browser is. Web I Basics focuses more exclusively on basic Internet skills. At the Martin Luther King, Jr. Library, more PC Basics classes are offered than Web I Basics classes. A brief summary of the computer classes surveyed is provided in the table below:

Survey Stakeholder	Number of Survey Responses
Web I Basics	6
PC Basics	46
Total	**52**

Table 2. Stage 1 Survey Stakeholder Summary Information

4.3.2. Survey Results

After collecting 52 surveys from adult learners taking PC Basics and Web I Basics, analysis was conducted on this survey data to better understand DCPL adult learners. As all survey questions were optional, not all 52 surveys had answers for every question. The analysis revealed that there are three ways to think of adult learners – by their library activity, by their computer class activity, and by the Internet activity. The results from these three ways are summarized in the sections below. A summary of the data collected during the surveys can be found in the Appendix B.

By Library Activity

The adult patrons surveyed can be categorized into three groups by describing their library activity as determined by the question how often they visited the DCPL. 63% of all adult learners frequently visited the library with 47% visiting at least once a week and 16% visiting at least once every day. 30% of adult learners visited the library less frequently with 16% visiting at least once every month and 14% visiting a couple of times during the year. For 7% of respondents, they were visiting the library for the first time when taking the survey.

By Computer Class Activity

To get involved in the DCPL computer class program, adult learners first needed to find out about the program. Whether if it was their first time at the DCPL or they come to the library every day, adult learners heard about the computer classes being held at the DCPL the most frequently from friends at 37% and flyers about computers classes at 27%.

Once they hear about the computer classes, over half of the all surveyed adult learners who frequently come to the library attend at least one computer class every week. 35% of adult learners who come to the library less frequently attend a couple of computer classes during the year. For 42% of these infrequent library visitors, this survey marked the first time they attended a computer class at the DCPL.

The DCPL offers a wide variety of computer classes covering a range of topics from PC Basics skills to HTML 5 development skills. Of the classes offered, the surveyed adult learners gravitated towards the basic level courses. Nearly a quarter of all adult learners had taken PC

Basics. Other popular courses included Word I, Web I Basics, PowerPoint, and Mavis Beacon Typing. The popular courses taken by the surveyed adult learners who visited the library frequently and infrequently reflected the popular courses taken by all surveyed adult learners.

When asked why they were attending computer classes at the DCPL, a majority of learners stated that the opportunity to learn how to use the Internet and/or improve the skills that they already had brought them to the computer class. When asked about which basic Internet skills they were interested in learning more about, learners expressed interest in a range of skills. The most commonly selected answers for all surveyed adult learners irrespective of library activity included:

- Distinguishing between the Internet and the World Wide Web
- Identifying and talking about the structure of the Internet and how it works
- Identifying and engaging the window features of the Internet Explorer (IE) web browser
- Differentiating between a web page and a web site
- Copying and pasting text and graphics from the Web to MS WORD

When asked if there were any skills that were not covered during the class that they wanted to learn more about, adult learners provided different answers to this free response question. Most common responses included how to find a job online, taking additional basic computer classes at the library to strengthen skills, how to post pictures on Facebook, and how to use email.

By Internet Activity

The surveyed adult learners can also be categorized by their Internet activity. Much like library activity, Internet activity can be categorized by frequency of use. For 6% of surveyed adult learners, they were using the Internet for the first time while taking the survey. For 14%, they were using the Internet infrequently at least once a month. Frequent Internet users made up 80% of the surveyed adult learners with 41% of all learners using the Internet at least once a week and 39% of learners using the Internet at least once a day.

When using the Internet, the most popular computing device for all surveyed adult learners is the desktop at 58% followed by laptops at 22%. Smartphones and tablets were used much less frequently to access the Internet.

Half of all surveyed adult learners accessed the Internet from the library. 29% accessed the Internet at home while 14% accessed the Internet from work. Of the surveyed adult learners that do not visit the library frequently, a higher percentage of these learners accessed the Internet

from home at 66%. For those who visited the library more frequently, a higher percentage of these learners accessed the Internet from the library at 63%. All surveyed adult learners responded that they rarely accessed the Internet from school, at a restaurant, or at a friend's or family member's house.

4.3.3. Potential New Features and Priorities

The purpose of collecting survey data from DCPL computer class adult learners was to develop ideas for new online starting point prototype features and to establish learning priorities for the prototype. As with the interview data, the potential new features were stored in a spreadsheet that was used during Stage 2. Some of the new features that emerged from the survey are:

- Copying and pasting text and graphics from the Web to MS WORD
- Adding a new lesson on how to use e-mail

The survey results also established priorities that the online starting point prototype should aim to fulfill. According to the survey results, a majority of the surveyed adult learners either use a desktop or laptop to access the Internet. Therefore, a priority for the online starting point prototype was to focus on having the prototype work on desktops and laptops over spending time and resources focusing exclusively on other computing devices like smartphones and tablets. Another priority was focusing on the five Internet skills identified by the surveyed adult learners as being the most important. At a minimum, the prototype should help learners understand and apply these five basic Internet skills.

CHAPTER 5: STAGE 2 RESULTS

5.1. Iterative Feedback Execution

To preliminarily evaluate and improve the online prototype before adult learners used *Hello Internet!*, a series of feedback interviews were conducted at the Martin Luther King, Jr. branch of the DCPL starting on August 23, 2014 and ending on September 27, 2014. To identify and help schedule interviews with potential stakeholders, the primary investigator worked with the DCPL Customer Training Coordinator. The stakeholders were invited to participate over email. Appendix C contains an example of the advertisement sent to stakeholders.

Before data collection began, 5 interview sessions were scheduled with 4 stakeholders. During Stage 2, two iterative feedback interviews were held with the DCPL Customer Training Coordinator. One interview was held at the beginning of Stage 2 to collect initial feedback on the prototype and to review and prioritize feedback that emerged from the Stage 1 data. A second interview was held at the end of Stage 2 to review the changes made to the prototype as a result of the feedback received and to review and prioritize any outstanding feedback not addressed. Of the other three stakeholders, one was a DCPL volunteer computer instructor who had past experience teaching the Web I Basics and Internet Job Seeking 101 classes, another was a staff member in the Adult Literacy department, and another was a staff member in the Adaptive Services department.

The feedback was iterative in nature because the primary investigator was able to incorporate the feedback into the prototype between stakeholder interviews during Stage 2. For instance, after the initial interview with the DCPL Customer Training Coordinator, the primary investigator incorporated as much of the high priority feedback received into the prototype for the DCPL volunteer computer instructor to review. After interviewing the volunteer computer instructor, the primary investigator incorporated as much of the high priority feedback received into the prototype for staff members working in the Adult Literacy and Adaptive Services departments to review. Finally, before the concluding interview with the DCPL Customer Training Coordinator, the primary investigator incorporated additional high priority feedback into the prototype for review. The iterative feedback questions can be found in Appendix C.

During each interview, the stakeholders were asked which features of the prototype they found the most and least useful. Then, they were asked to prioritize the features that should be added to the next iteration of the prototype. Each change request made by a stakeholder during an interview was documented in a feature tracking spreadsheet. The primary investigator made an estimate of the effort required to make the change. The priority paired with the effort to make the change helped to guide the primary investigator in deciding which features were added. Not all features were able to be added before the end of Stage 2 due to limited time and resources. To view all of the change requests recorded during Stage 2, please view the feature tacking spreadsheet found in Appendix C.

5.2. *Hello Internet!* Prototype

The online starting point prototype developed for this study was called *Hello Internet!*. The prototype was built in several iterations as results from Stages 1 and 2 became available as way of requirements for this prototype. The technologies used to build this prototype, the overall content contained in the prototype, and a brief walkthrough of Web 101, one of the site's five modules, are outlined in the sections below. Appendix E contains walkthroughs of Getting Started, Search Engines, Navigating the Web, and Online Forms modules of the prototype.

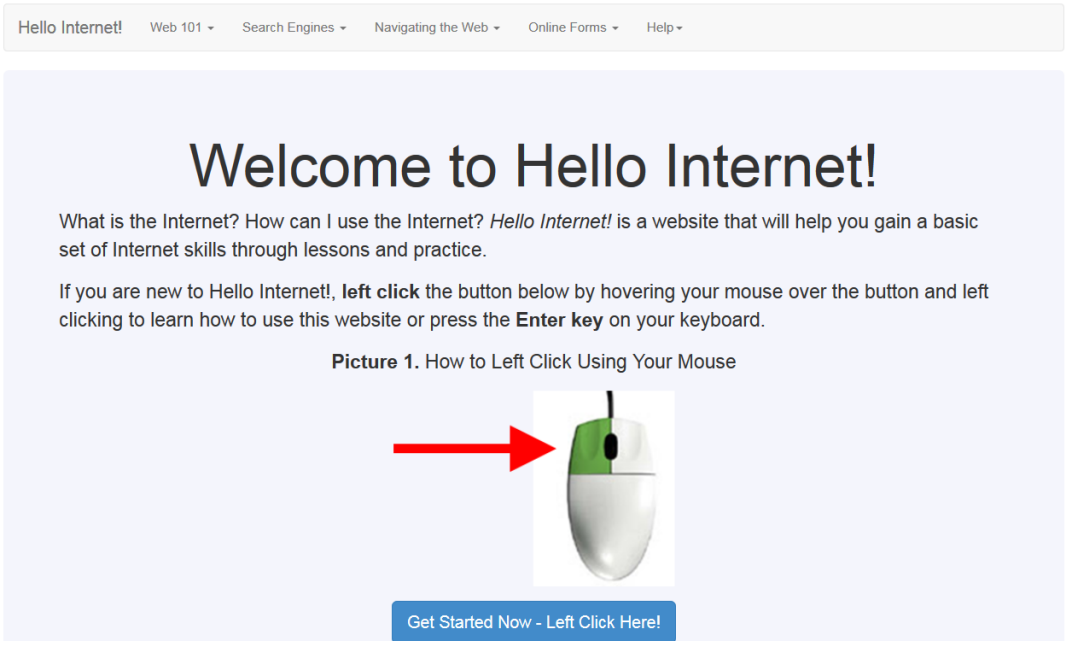


Figure 8. *Hello Internet!* Home Page

5.2.1. Development Technologies

The *Hello Internet!* prototype was built using a number of web technologies as outlined in the table below. When selecting technologies, emphasis was placed on using open source solutions. The solutions needed to support a responsive design that allowed the site to be viewed in multiple browsers across multiple devices with accessibility in mind.

Technology Name	Description
HTML5	Used to display the content of each lesson
Bootstrap	A responsive open source web development framework developed at Twitter
JQuery/JQuery UI	A JavaScript library used to create the Try It Out! interactive exercises
TinyTake	An open source screen recording program used to create the videos for

	each lesson
YouTube	A video sharing website that was used to post and share the videos for each lesson
JAWS	An accessibility screen reader software program used to help check *Hello Internet!* for Section 508 compliance and accessibility

Table 3. Technologies Used to Create *Hello Internet!*

5.2.2. *Hello Internet!* Modules

At the end of Stage 2, *Hello Internet!* had five modules of content for users to explore and start learning about the Internet and the World Wide Web. Each module was devoted to a general topic concerning basic Internet skills, and each module was broken down into lessons on more specific skills. These modules and lessons are described in greater detail in the table below. These modules were inspired by the Web I Basics and Web II Intermediate class scripts created by the DC Public Library for its volunteer computer instructors to use for teaching classes, the Stage 1 requirements, the resources found during the literature review of this study, and the primary investigator's previous experience teaching computer classes at the DCPL.

Module Name	Lesson Name	Description
Get Started!	Get Started!	Provides an introduction to the Get Started! module
	How Do I Scroll?	Describes how to scroll up and down a page using the vertical scroll bar
	What Will I Learn From *Hello Internet!*?	Outlines what topics are covered in *Hello Internet!*
	How Do Lessons Work?	Explains how each lesson is structured
Web 101	What's the Web?	Defines the differences between the Internet and the World Wide Web
	How to Get On the Web	Details three ways to connect to the Internet in the DCPL
	What's a Browser?	Identifies an Internet browser and demonstrates its basic features
Search Engines	What's a Search Engine?	Defines what a search engine is and why a search engine is important

	How to Do a Basic Search	Walks through a basic search example using Google
	How to Do an Advanced Search	Gives an overview of Advanced Search functionality in Google
Navigating the Web	Website Parts	Describes the differences and similarities of websites
	How to Use Links	Shows how to use menus, footers, and breadcrumbs to find information
	How to Find Information	Explains how to use the content on the page to find the wanted information
	How to Use Information	Explains how to evaluate and properly cite information found online
Online Forms	What's an Online Form?	Defines an online form and how online forms are used on the World Wide Web
	How to Use Online Forms	Illustrates the different online form elements and how to use them

Table 4. *Hello Internet!* Modules and Lessons

5.2.3. *Hello Internet!* Module Walkthrough – Web 101

In this section, the Web 101 module is reviewed to provide a more detailed perspective of the *Hello Internet!* online starting point prototype. The objective of the Web 101 module was to learn the basics on how to start using the Internet and the World Wide Web.

5.2.3.1. Web 101 Home Page

Each module had its own home page where the purpose of the module was defined, and the sections of the module were broken out into separate navigational buttons for each lesson in the module. The home page for the Web 101 module is shown below.

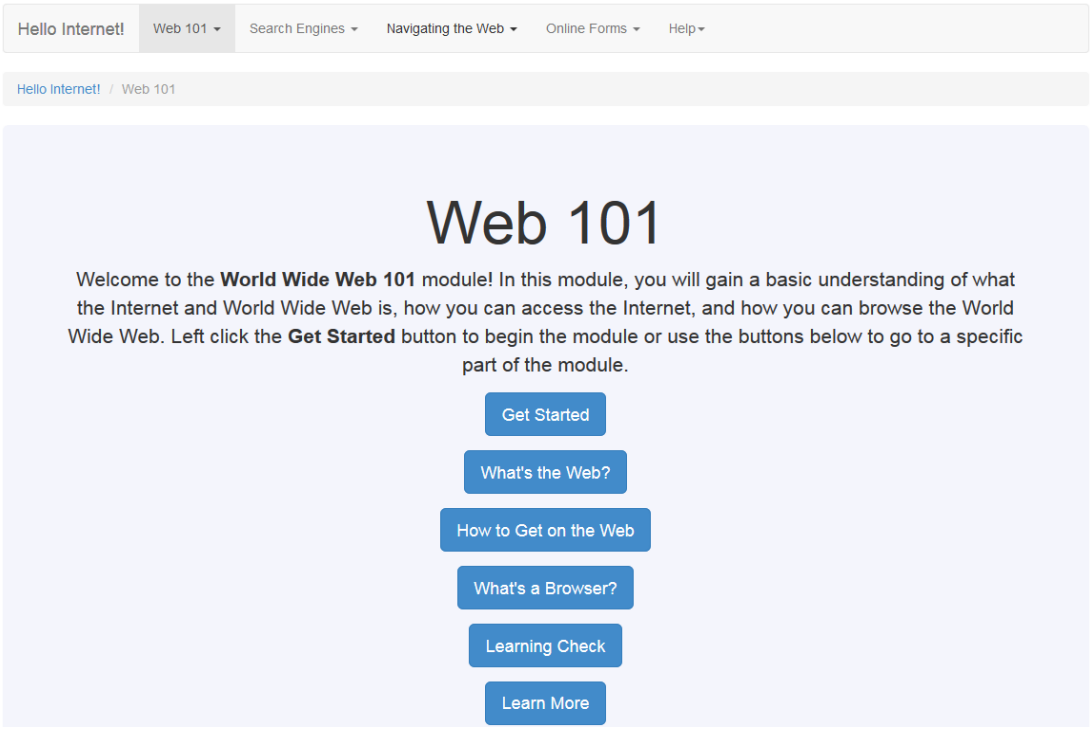


Figure 9. Web 101 Home Page

5.2.3.2. What's the Web? Lesson

The goal of the What's the Web? lesson is to understand the differences between the Internet and World Wide Web. Each lesson begins with an outline of the lesson in bullet point form. Each bullet point is a hyperlink taking the user to that part of the lesson.

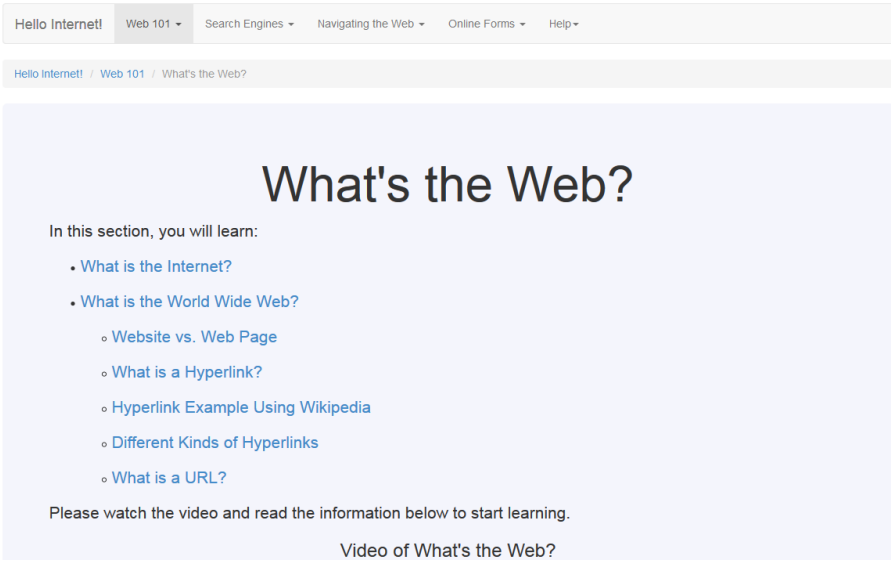


Figure 10. What's the Web? – Table of Contents

Below the bullet point list is a YouTube video demonstrating the skills presented in the lesson in a real world scenario. These videos are typically under 5 minutes in length and appear for each lesson in *Hello Internet!*. As will be demonstrated by the figures below, *Hello Internet!* relies on video, text, pictures, and interactive exercises to teach basic Internet skills to accommodate the different ways that people learn.

Figure 11. What's the Web? – Video

Below the video is the start of the text and picture content. The text is used to describe a concept while the picture is used to illustrate the concept. Over the next few figures below, the concepts of the Internet, World Wide Web, and hyperlinks are explained using text, tables, lists, and pictures.

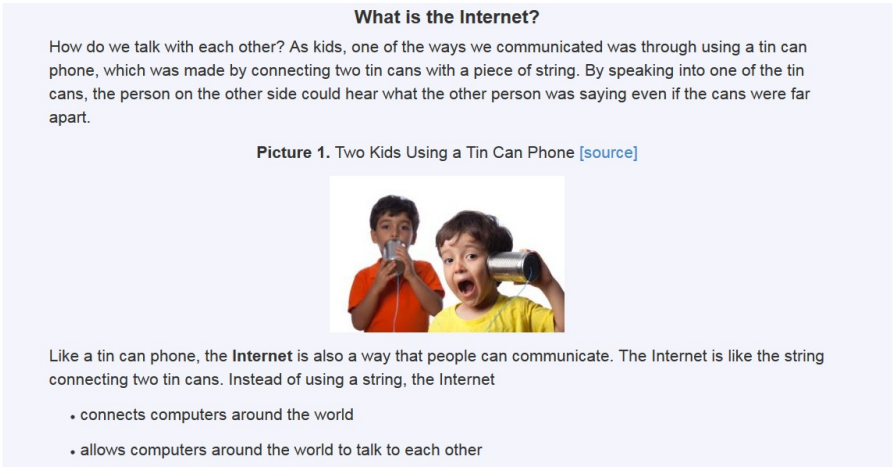
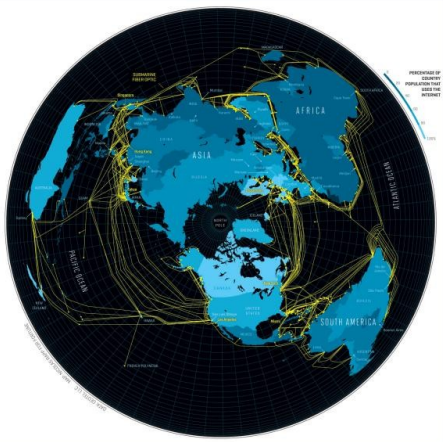


Figure 12. What's the Web? – What is the Internet?

Internet connections that cross oceans and continents can be seen as the yellow lines in the world map below.

Picture 2. The World's Fiber-Optic Network as Viewed from the North Pole [source]



Instead of two tin cans, the Internet connects billions of computers together to share all kinds of information such as words, pictures, music, video, and more.

Figure 13. What's the Web? – What is the Internet? (continued)

What is the World Wide Web?

While the Internet is the network of computers, the **World Wide Web** is a network of information.

The World Wide Web is made up of websites like

- Google
- Facebook
- Wikipedia
- YouTube
- the DC Public Library
- and many billions more.

Website vs. Web Page

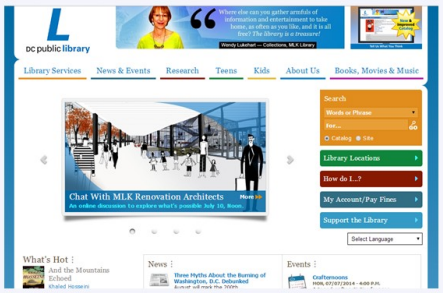
Each **website** has one or more **web pages**. For example, the DC Public Library website has many web pages including pages about Library Services, News & Events, and Research.

A **home page** is the leading web page in a website that allows you to reach all of the web pages for a website. DC Public Library's home page is shown below.

Picture 3a. DC Public Library's Home Web Page

Figure 14. What's the Web? – What is the World Wide Web?

Picture 3a. DC Public Library's Home Web Page



All web pages can be reached from a home page because of **hyperlinks**. Some of the web pages reached from the DC Public Library's home page are shown below.

Picture 3b. DC Public Library's Web Site

DC Public Library Home Page

Figure 15. What's the Web? – What is the World Wide Web? (continued)

Picture 3b. DC Public Library's Web Site

DC Public Library Home Page

Research Web Page | News & Events Web Page | Services Web Page

What is a Hyperlink?

Figure 16. What's the Web? – What is the World Wide Web? (continued)

What is a Hyperlink?

Unlike being connected through wires or a piece of string, the World Wide Web is connected through links between web pages called **hyperlinks**.

- Hyperlinks are references on one web page to another web page.
- Hyperlinks can connect different web pages to create a website or can connect two different websites together.

Hyperlinks are like to the roads allowing us to travel from web page to web page.

Hyperlink Example Using Wikipedia

The following images show an example of how hyperlinks work using the Wikipedia entry on Batman as an example. Wikipedia is an online encyclopedia that anyone on the Internet can add information to that covers a wide variety of subjects including Batman.

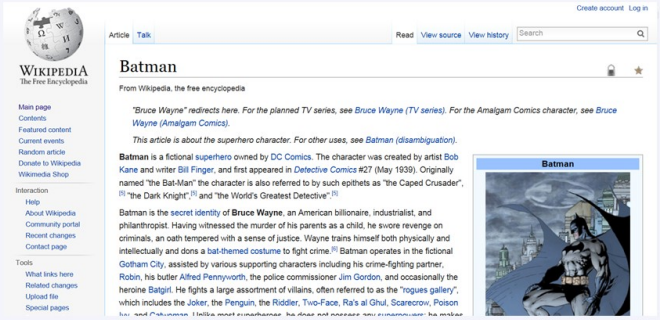
Below you can see the Wikipedia Batman entry. Any of the text that appears in blue font is a hyperlink.

If you were actually visiting this page, by left clicking on any of these hyperlinks in blue text, you would be taken to another web page in the Wikipedia website.

Picture 4. Batman Wikipedia Entry

Figure 17. What's the Web? – What is a Hyperlink?

Picture 4. Batman Wikipedia Entry



For example, if we were interested in learning more about Batman creator Bill Finger, we could left click on the Bill Finger hyperlink. We would do that by hovering the mouse over the Bill Finger hyperlink and left clicking the hyperlink.

Then, we would be taken to the Bill Finger Wikipedia entry page. Notice that the Batman hyperlink at the beginning of the Wikipedia entry is in a dark purple font, showing that you have already visited this page.

Figure 18. What's the Web? – What is a Hyperlink? (continued)

Figure 19. What's the Web? – What is a Hyperlink? (continued)

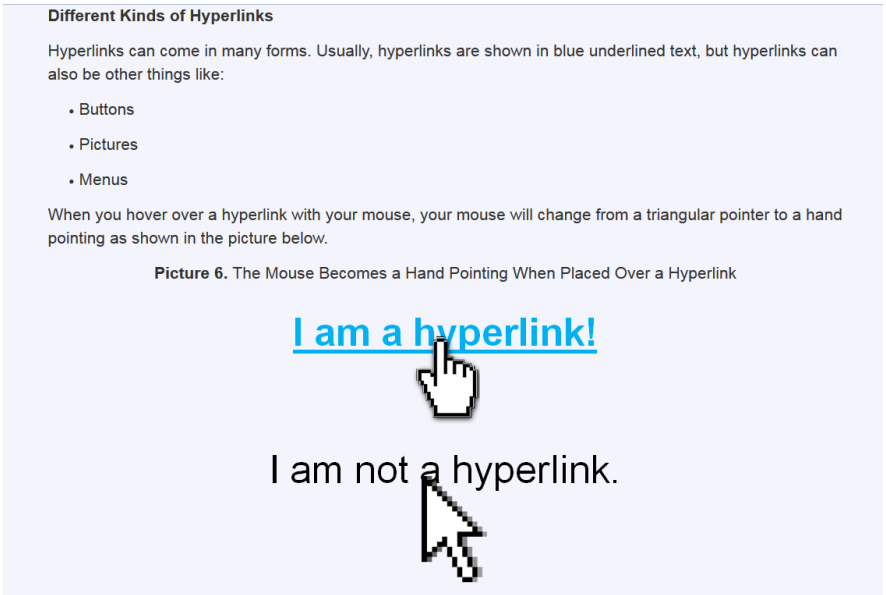


Figure 20. What's the Web? – What is a Hyperlink? (continued)

To get a better understanding of the concepts presented in each lesson, there are certain sections of each lesson called Try It Out! that encourage users to practice the skills that they are learning in the lesson. The figures below show a Try Out It! section for practicing identifying where hyperlinks on are on the page.

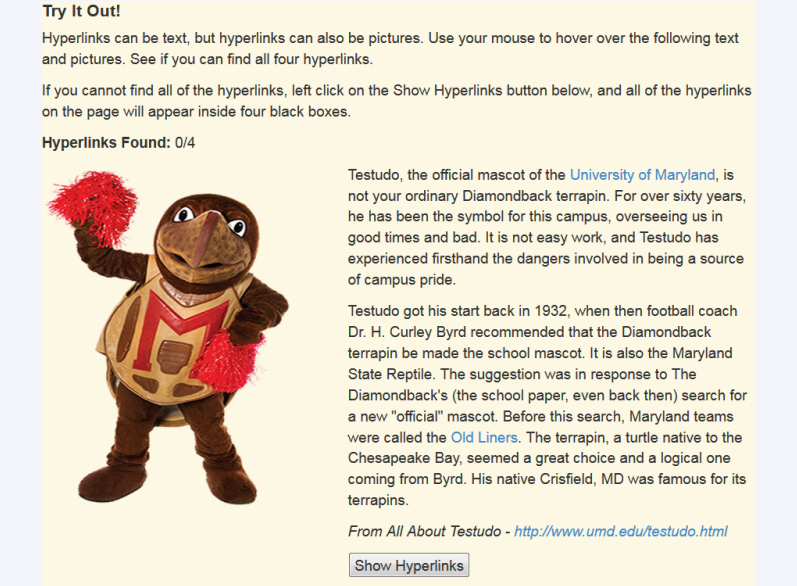


Figure 21. What's the Web? – Try It Out!

When a user clicks on a hyperlink, he/she is notified of their success via a popup window.

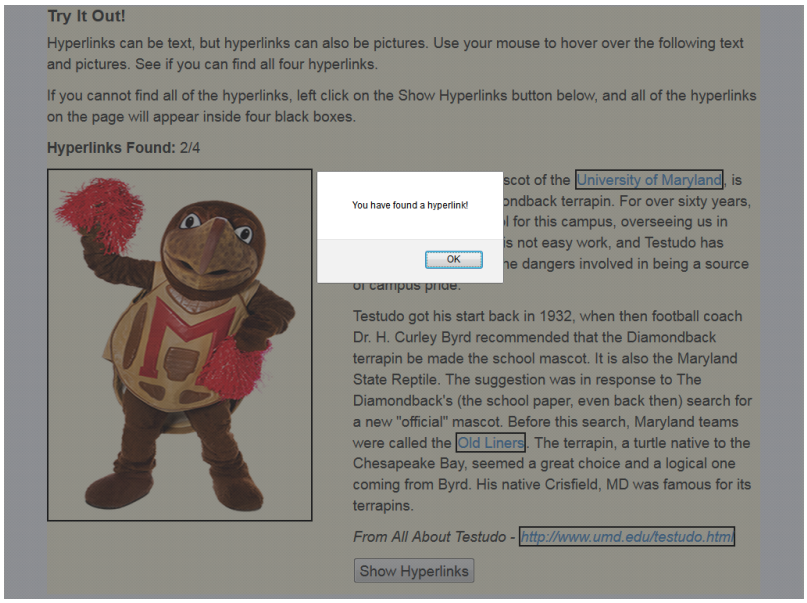


Figure 22. What's the Web? – Try It Out!

When identifying the mix of text and picture hyperlinks, the user is done with the task after finding all four hyperlinks and receives a success message. If the user cannot identify all four hyperlinks, the user can click on the Show Hyperlinks button to surround the hyperlinks in the Try It Out! section in black boxes to more easily pick these hyperlinks out.

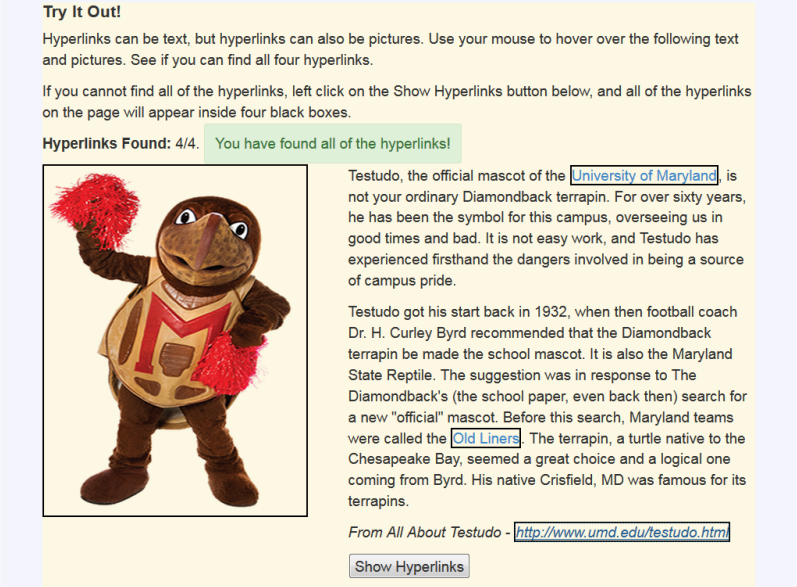


Figure 23. What's the Web? – Try It Out!

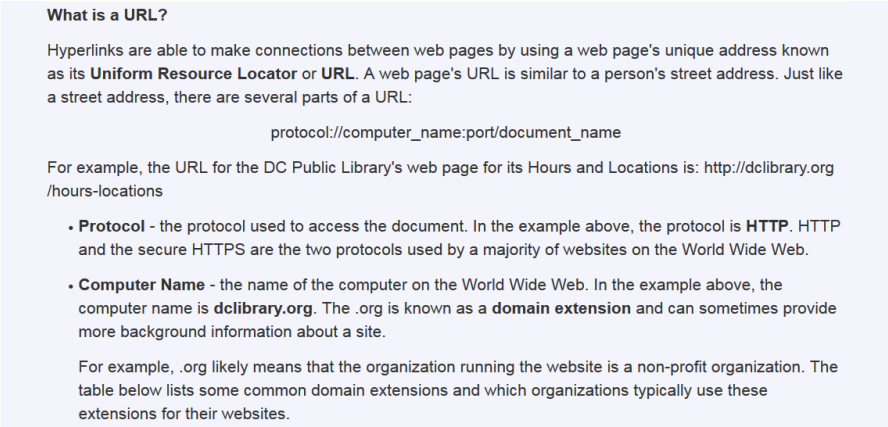


Figure 24. What's the Web? – What is a URL?

At the bottom of every lesson, there are two buttons that the user can click on to navigate to the previous page or continue learning the next lesson.

Table 1. Domain Extensions

Domain Extensions	Typically Used By
.com	For-profit and commerical organizations like Google (http://www.google.com)
.org	Non-proft organizations like the DC Public Library (http://dclibrary.org)
.edu	Educational organizations like the University of Maryland (http://www.umd.edu)
.gov	Government organizations like the United States House of Representatives (http://www.house.gov)

- **Document Name** - the name of the web page you are accessing on the computer. In the example above, the document name is **hours-locations**.

Go Back to Web 101 | Continue to How to Get on the Web

This prototype is created as a part of a University of Maryland research project conducted by Steven Dodge with the permission of the DCPL. Any questions or comments should be directed to Steven Dodge by emailing him at sdodge@umd.edu.

Figure 25. What's the Web? – What is a URL? (continued)

5.2.3.3. How to Get on the Web Lesson

The goal of the How To Get on the Web lesson to show three ways that users connect to the Internet at the DCPL. Like the What's the Web? lesson, this lesson uses multiple forms of content to achieve this goal as shown in the figures below.

How to Get on the Web with a Wired Connection

At the Martin Luther King, Jr. Library, computers in the computer lab are connected to the Internet through a **wired connection**. A wire known as an Ethernet network cable plugs into these desktop computers providing an Internet connection as shown in the picture below.

Picture 1. Wired Internet Connections - the DC Public Library computers are connected to the Internet through using an Ethernet cord

To use the computers at the DC Public Library's computer lab, you will need to have a library card, which you can get for **free**. For how to get a library card, please follow the directions found here. For rules on how to use the computers at the DC Public Library, please follow the rules found here.

Figure 26. How to Get on the Web – How to Get on the Web with a Wired Connection

Figure 27. How to Get on the Web – How to Get on the Web with a Wireless Connection

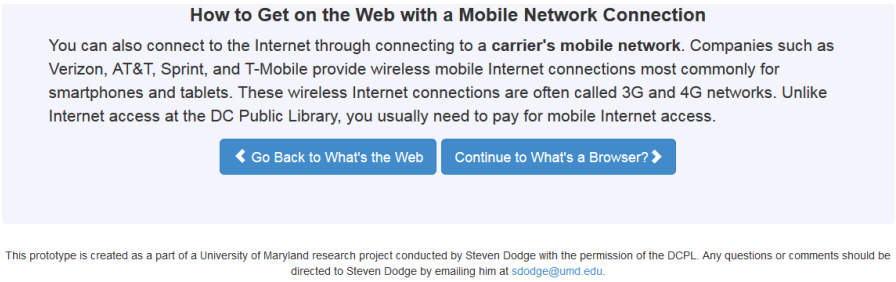


Figure 28. How to Get on the Web – How to Get on the Web with a Mobile Network Connection

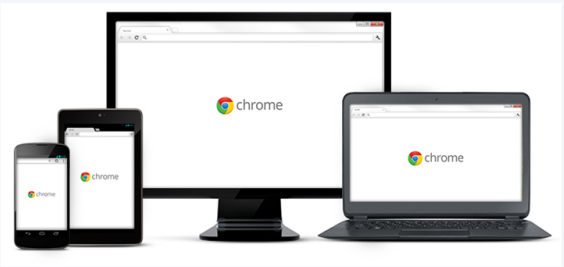
5.2.3.4. What's a Browser? Lesson

The goal of the What's a Browser? lesson is to define what an Internet browser is and its basic functions. To have users practice using the basic functions of an Internet browser, a fake Internet browser was built for the Try It Out! sections of this module. In addition, the keyboard commands for the basic Internet browser functions were also defined in tables.

What is an Internet Browser?

Once you are connected to Internet, you are on your way to visiting websites and finding information on the World Wide Web. The World Wide Web is a really big place. To find your way around the World Wide Web and view websites, you use what is called an **Internet browser**. An Internet browser is a software program that runs on your computing device - whether that device is a desktop computer, smartphone, tablet, or even a television - that allows you to visit websites.

Picture 1. Different Devices with the Google Chrome Internet Browsers



Differents Kinds of Internet Browsers

There are many different kinds of Internet browsers. The most popular browsers include

- Google Chrome
- Internet Explorer

Figure 29. What's a Browser? – What is an Internet Browser?

Differents Kinds of Internet Browsers

There are many different kinds of Internet browsers. The most popular browsers include

- Google Chrome
- Internet Explorer
- Firefox
- Safari

All of these browsers must be downloaded in order to use. To begin downloading a browser, check out the Learn More section.

While different browsers have different features, all popular browsers have many basic features in common. To show these features in action, the **Google Chrome browser** will be used for desktop and laptop computers. The Google Chrome browser is different than using the Google search engine to find information on the World Wide Web.

Picture 2. The Google Chrome Browser

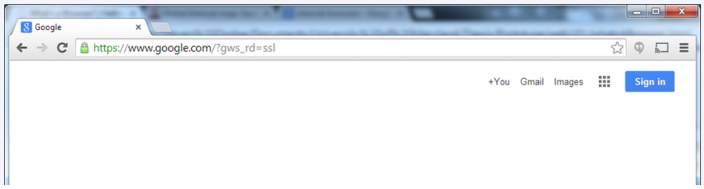


Figure 30. What's a Browser? – Different Kinds of Internet Browsers

Picture 2. The Google Chrome Browser

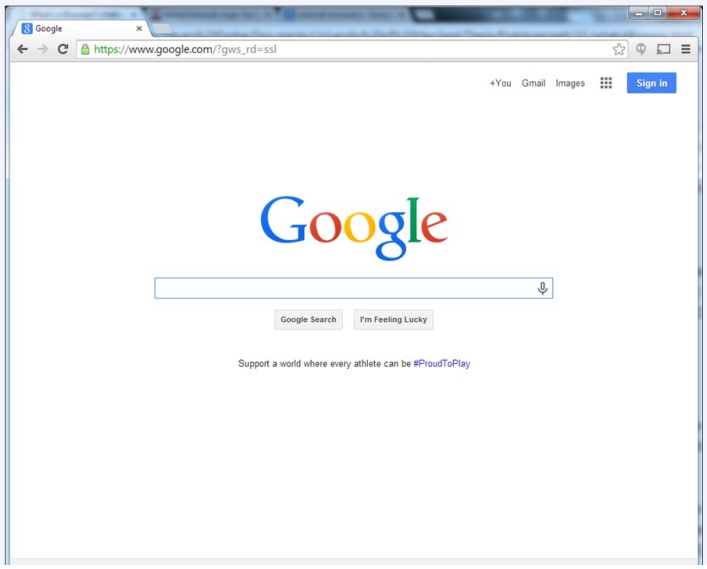


Figure 31. What's a Browser? – Different Kinds of Internet Browsers (continued)

Basic Internet Browser Skills

Internet browsers have two key sections - the top part of the browser and the rest below where the web page is shown. The top part has many features including the address bar, tabs, and the Back and Forward buttons. The top part will be the focus for the rest of this section.

Picture 3. The Two Main Sections of the Google Chrome Browser

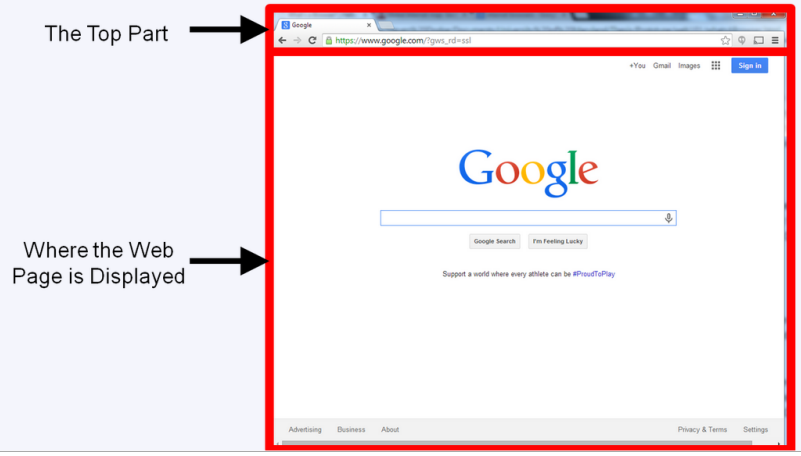


Figure 32. What's a Browser? – Basic Internet Browser Skills

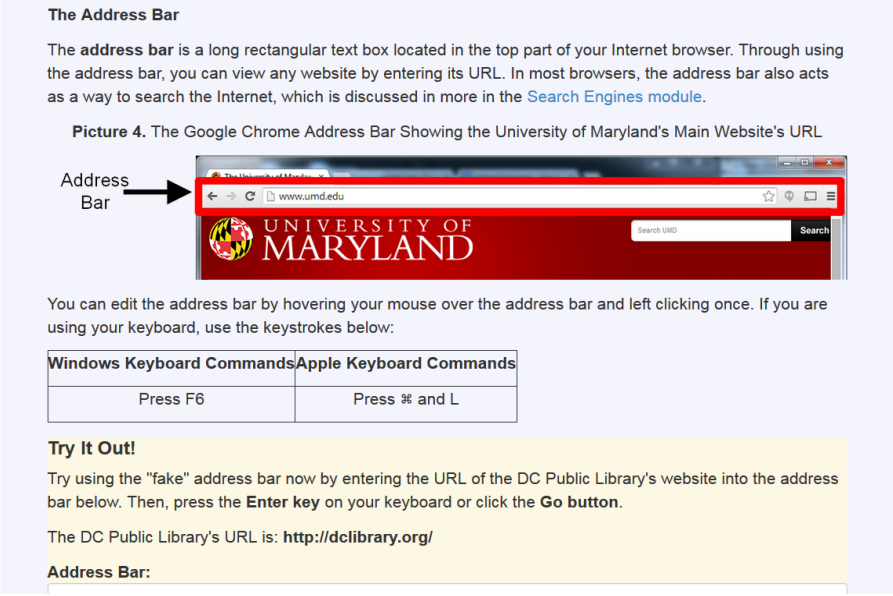


Figure 33. What's a Browser? – The Address Bar

In this fake Internet browser, users are asked to enter the URL of the DCPL website into a text field to practice entering web addresses in an Internet browser.

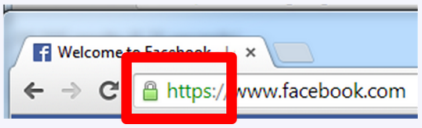
Figure 34. What's a Browser? – The Address Bar Try It Out!

HTTP vs HTTPS

Looking at the address bar when visiting a website can help tell you if you can trust the information displayed on the web page. For example, the **protocol portion** of a URL or web address in the address bar is important to look at when you are entering information into a web page for online shopping, banking, sending an email, and more.

Secure websites will use a **HTTPS protocol**, which is shown by a green lock as seen below. When providing information, you want to make sure the website is using HTTPS for your security and protection.

Picture 5. HTTPS in the Address Bar Indicates that a Website is Secure



In addition, make sure to look at the complete web address as well. For example, if you were going to check on your Capital One banking balance online, you would want to make sure that you are visiting:

- **Correct URL:** https://www.capitalone.com

instead of:

- **Incorrect URL:** http://www.capitolone.com.

There is no Capitol One bank spelled "Capitol" instead of "Capital." http://www.capitolone.com is likely a website designed to steal your bank account information. While the address bar can take you to different websites on the World Wide Web, the address bar can also provide you with information to determine if you can trust a website.

Figure 35. What's a Browser? – HTTP vs. HTTPS

Tabs

Browsers can show one or more web pages in the same window through using **tabs**. Each tab has its own web page. In the previous example, the DC Public Library's web page is displayed in one tab.

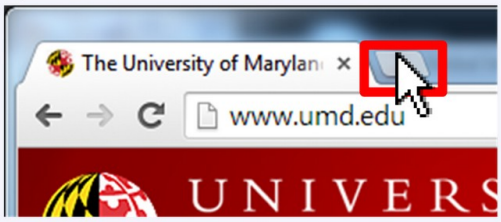
Tabs are added differently in different browsers. To open a new tab in using the Google Chrome browser, click on the Plus button after the first tab above the address bar. If you are using your keyboard, use the keystrokes below:

Windows Keyboard Commands	Apple Keyboard Commands
Press Control and T	Press ⌘ and T

Figure 36. What's a Browser? – Tabs

Picture 6. Opening a New Tab in Google Chrome

1) Click on the button next to the last opened tab.



2) A new tab opens.

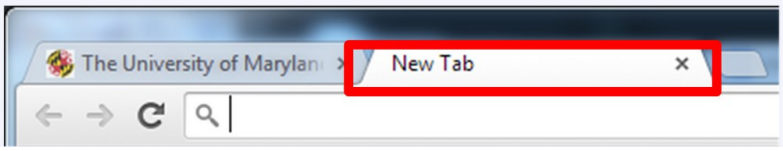


Figure 37. What's a Browser? – Tabs (continued)

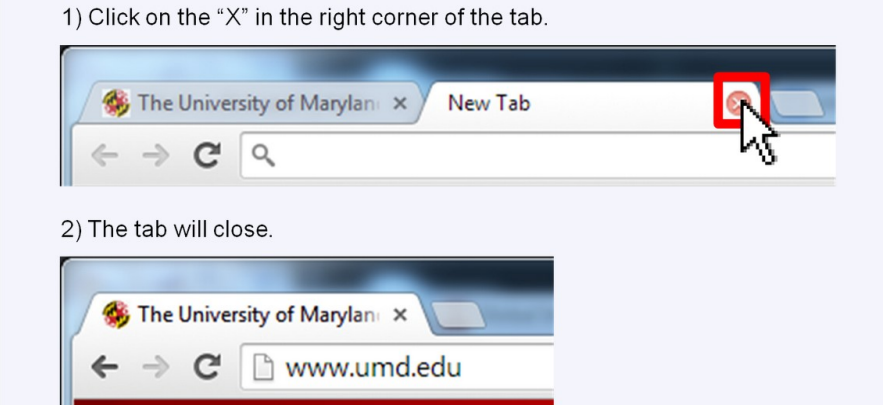


Figure 38. What’s a Browser? – Tabs (continued)

In this fake Internet browser, users can practice opening tabs, closing tabs, and using the address bar to navigate to websites.

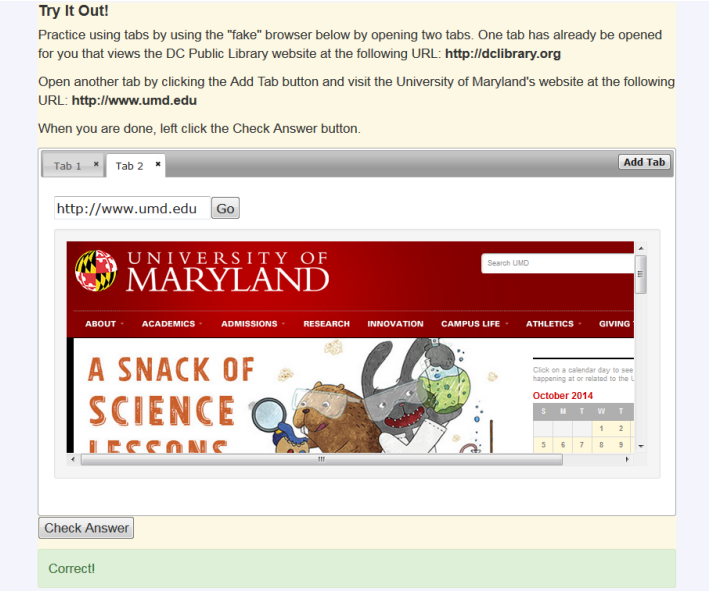


Figure 39. What’s a Browser? – Tabs Try It Out!

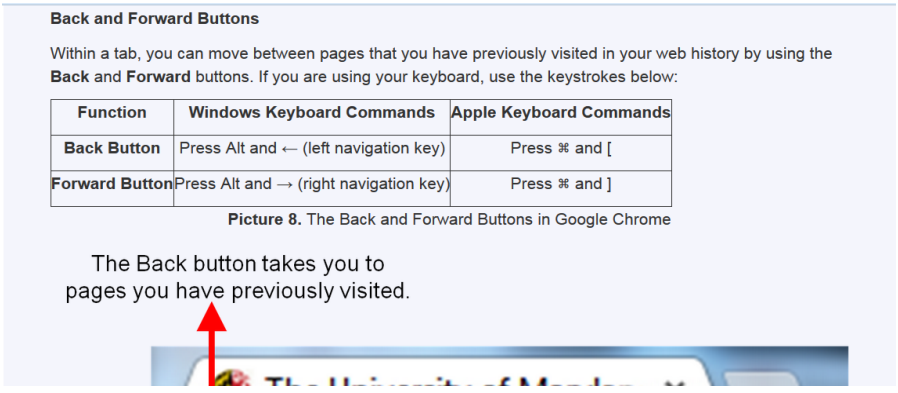


Figure 40. What’s a Browser? – Back and Forward Buttons

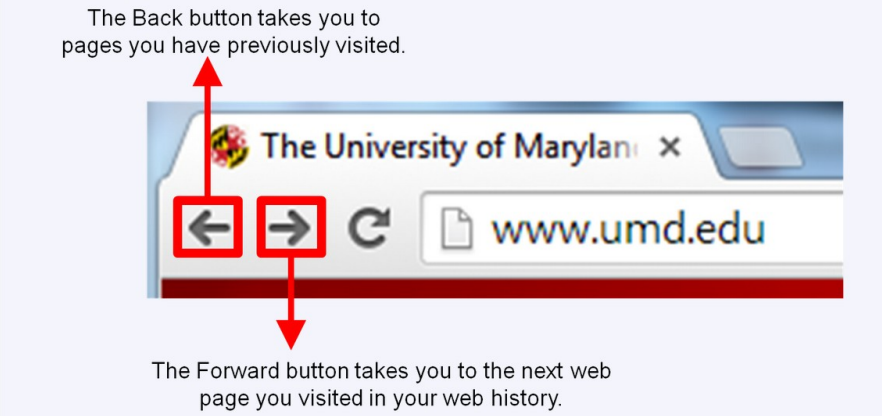


Figure 41. What's a Browser? – Back and Forward Buttons (continued)

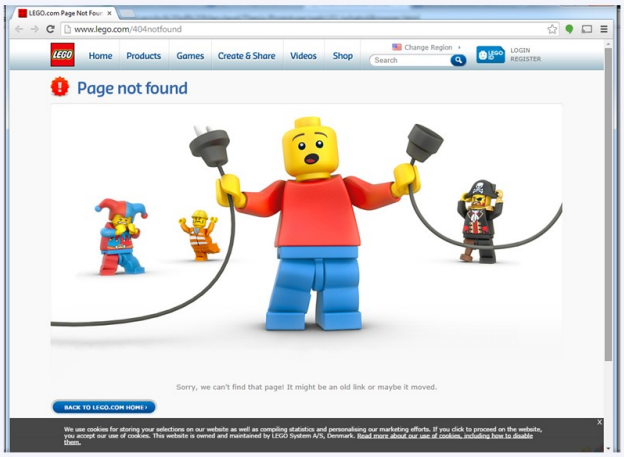
404 Web Pages

When surfing the World Wide Web, you may sometimes reach a website's **404 page**. A 404 page means that the page you have navigated to does not exist anymore and/or has been moved to another location. This usually happens when the people who create and maintain websites forget to update hyperlinks when moving web pages around. You have not done anything wrong.

If you encounter a 404 page, you can always click on the Back button in your Internet browser to return the previous page. An example of a 404 web page from the Lego website is shown below.

Figure 42. What's a Browser? – 404 Web Pages

Picture 9. Lego's 404 Page Not Found Page



Go Back to How to Get On the Web | Continue to Learning Check

Figure 43. What's a Browser? – 404 Web Pages (continued)

5.2.3.5. Web 101 Learning Check

After the lessons in each module, users are given an opportunity to test their knowledge and skills through the Learning Check pages. The Learning Check pages test users on their knowledge of important concepts and ask users to complete certain tasks. In many cases, these tasks are similar to the Try It Out! activities found in each lesson. The Web 101 Learning Check features five questions and can be found in the figures below.

Hello Internet! | Web 101 | Search Engines | Navigating the Web | Online Forms | Help

Hello Internet! / Web 101 / Learning Check

Web 101 Learning Check

In this section, you will have a chance to test what you learned in the previous Web 101 sections. Answer the five questions below about Web 101.

Question 1) What is the Internet? *Left click the Check Answer button to see if you are correct.*

- **A)** The Internet is a network of information made up of websites like Google, Facebook, Wikipedia, YouTube, the DC Public Library, and many billions more.
- **B)** The Internet is a network of computers that crosses oceans and continents
- **C)** The Internet is a reference to one web page to another web page.
- **D)** The Internet is a web page's unique address.

Check Answer

Figure 44. Web 101 Learning Check Question 1

Question 2) What is the World Wide Web? *Left click the Check Answer button to see if you are correct.*

- **A)** The World Wide Web is a network of information made up of websites like Google, Facebook, Wikipedia, YouTube, the DC Public Library, and many billions more.
- **B)** The World Wide Web is a network of computers that crosses oceans and continents
- **C)** The World Wide Web is a reference to one web page to another web page.
- **D)** The World Wide Web is a web page's unique address.

Check Answer

Figure 45. Web 101 Learning Check Question 2

Question 3) Find the three hyperlinks in the section below. Click on each hyperlink.

Hyperlinks Found: 0/3

The District of Columbia Public Library was created by an act of Congress in 1896 "to furnish books and other printed matter and information service convenient to the homes and offices of all residents of the District." The establishment of the library was largely due to the long and arduous efforts of Theodore W. Noyes, editor of The Evening Star. Mr. Noyes served as president of the Board of Library Trustees for 50 years.

From 1898 until 1903, the DC Public Library was located in a house at 1326 New York Ave. NW. In 1899, philanthropist and library enthusiast Andrew Carnegie donated funds to build the Central Library at Mount Vernon Square. In 1903, the new Central Library was dedicated in a ceremony attended by President Theodore Roosevelt.

From Mission & History - http://dclibrary.org/about/mission

Show Hyperlinks

Figure 46. Web 101 Learning Check Question 3

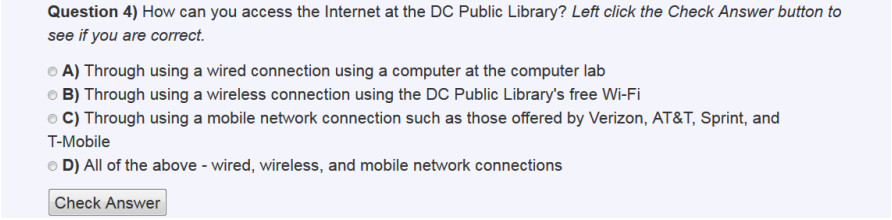


Figure 47. Web 101 Learning Check Question 4

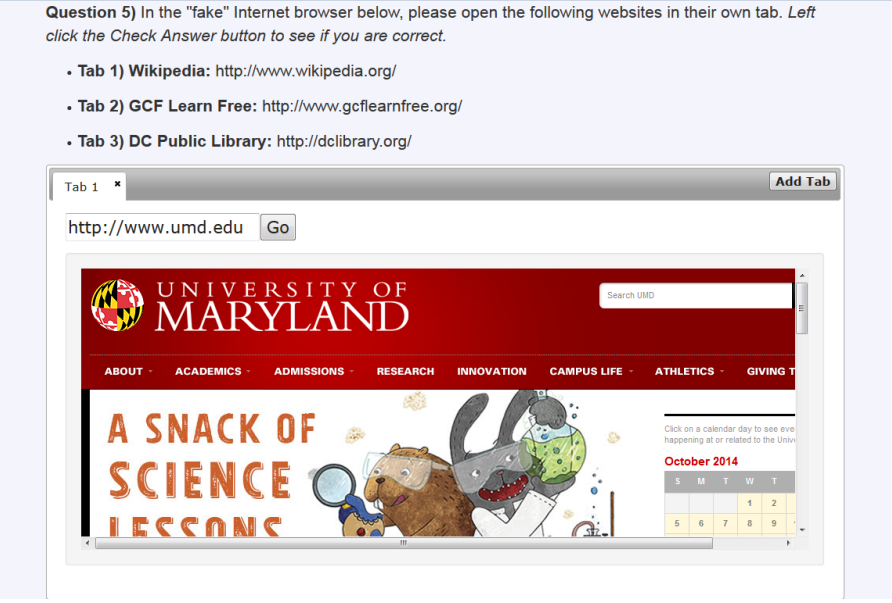


Figure 48. Web 101 Learning Check Question 5

5.2.3.6. Web 101 Learn More

Each *Hello Internet!* module concludes with a list of online resources where users can learn more about the module's topics. The resources are organized into two categories. The DC Public Library Resources category refers to the services that the DC Public Library offers to patrons related to the module. The Even More Resources category refers to websites outside of the DC Public Library where users can learn more.

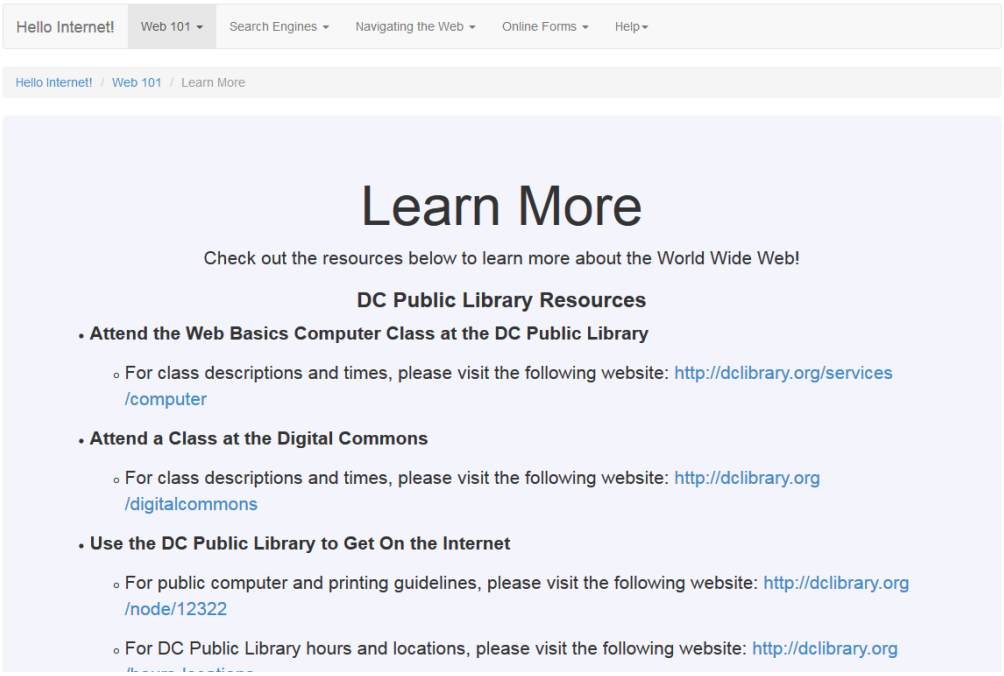


Figure 49. Web 101 Learn More

CHAPTER 6: STAGE 3 RESULTS

6.1. Stage 3 Execution

After receiving and incorporating feedback from the volunteer computer instructors and DCPL staff members in Stage 2, the online prototype was ready to be used by adult learners. In Stage 3, the online prototype was used by the adult learners of the DCPL over the course of three classes scheduled in October 2014 called *Hello Internet!*. The *Hello Internet!* class was scheduled with the DCPL Customer Training Coordinator and advertised through the DCPL Computer Class Calendar fliers and the DCPL website. The classes were scheduled during the weekday and weekends to capture a representative adult learner population. In total, 15 adult learners participated in Stage 3. The Stage 3 advertisements can be viewed in Appendix D.

The *Hello Internet!* classes were moderated by the primary investigator. The two hour class was divided into four parts. First, the primary investigator introduced the purpose of the class, its involvement with the University of Maryland, and signing the consent form. Second, adult learners took an online survey to collect information related to their past DCPL and Internet experiences. Then, adult learners were guided by the primary investigator to the online prototype to begin learning about the Internet and the World Wide Web independently through watching videos, reading the lesson text, and completing lesson exercises. The primary investigator served as a resource to answer any questions adult learners had about the online prototype or the Internet and World Wide Web. At the end of the class, the adult learners completed an online survey where they were able to provide feedback on the online prototype. Adult learners were given a handout during the class that explained how to get back to *Hello Internet!* from a computer if they were interested in learning more outside of the classroom. This handout can be found in Appendix D.

6.2. Stage 3 Before Survey Results

Before the adult learners starting using the Internet, the learners completed a brief survey to identify their past experiences with the DC Public Library and the Internet. All survey questions were optional, so not all questions received responses. These survey results echoed similar results collected during the Stage 1 surveys. 73% of participants attended the library frequently meaning daily or weekly. 27% of participants attended the library infrequently meaning monthly or yearly. Close to half of the adult learners frequently attended computer classes at the DCPL on a daily or weekly basis. For two participants, *Hello Internet!* represented the first computer class at the DCPL. While the computer classes at the DCPL were taken by at least one adult learner, the most popular classes were the core computer and Internet basics classes of PC Basics, Web I Basics, Word I, Word II, and Mavis Beacon.

A majority of the adult learners participating in the *Hello Internet!* classes identified as being frequent Internet users with 33% using the Internet at least once a week and 40% using the Internet daily. 1 adult learner was using the Internet for the first time during the class. The

desktop was the most popular way to access the Internet for the participating adult learners with 75% of all learners. 38% of learners used a laptop to access the Internet. Smartphones and tablets were used by no more than 25% of the learners. The two most popular locations where adult learners accessed the Internet was at home and at the library with over half of all learners identifying with either option. Only 13% of learners accessed the Internet from work or at school. All learners who accessed the Internet at the library identified desktops as an Internet access device. Learners who specified locations other than the library for Internet access mentioned laptops, smartphones, and tablets as Internet access devices. For complete results from the survey, please consult Appendix D.

6.3. Stage 3 After Survey Results

After taking the class, the adult learners were asked to complete a brief survey to assess the usability of the online starting point prototype. The survey was based on the USE Questionnaire developed by Arnold M. Lund. The survey provides a way to measure usability dimensions from a user's perspective. The survey measures four dimensions using several Likert scale questions asking if users Strongly Disagree or Strongly Agree with a statement. These dimensions are usefulness, ease of use, ease of learning, and satisfaction. No open-ended questions were asked. All survey questions were optional, so not all questions received responses. The survey questions and responses can be found in Appendix D.

6.3.1. Usefulness

The adult learners were asked a series of statements to assess the usefulness of the online prototype. For this dimension, all responses were skewed to either agreeing or strongly agreeing that the online prototype was useful. A majority of adult learners strongly agreed with the following statements:

- It is useful. (73%)
- It makes the things I want to accomplish easier to get done. (47%)
- It meets my needs. (53%)
- It does everything I would expect it to do. (53%)

6.3.2. Ease of Use

For the dimension of ease of use, all responses were skewed to either agreeing or strongly agreeing that the online prototype was easy to use. A majority of adult learners strongly agreed with the following statements:

- The prototype is easy to use. (53%)
- The prototype is simple to use. (40%)

- The prototype is user friendly. (47%)
- Using the prototype is effortless. (47%)
- I can recover from mistakes quickly and easily. (60%)
- I can use the prototype successfully every time. (53%)

6.3.3. Ease of Learning

For the dimension of ease of learning, all responses were skewed to either agreeing or strongly agreeing that the online prototype was easy to learn. A majority of adult learners strongly agreed with the following statements.

- I easily remember how to use the prototype. (47%)
- It is easy to learn to use the prototype (40%)

A majority of adult learners agreed with the following statement:

- I learned to use the prototype quickly. (47%)
- I quickly became skillful with the prototype. (47%)

6.3.4. Satisfaction

For the dimension of satisfaction, all responses were skewed to either agreeing or strongly agreeing that the online prototype was satisfying to learn. A majority of adult learners strongly agreed with the following statements:

- I am satisfied with the prototype. (60%)
- I would recommend the prototype to a friend. (53%)
- The prototype was fun to use. (47%)
- The prototype works the way I want it to work. (40%)
- The prototype is wonderful. (53%)
- The prototype is pleasant to use. (60%)

Overall from a usability perspective, the reception of the online starting point prototype by the adult learners was positive across all four usability dimensions. The adult learners found the online starting point prototype useful, easy to use, easy to learn, and satisfying to use.

CHAPTER 7: CONCLUSION

7.1. Discussion

This study set out to determine how American public libraries can provide an online interactive starting point for learning and practicing basic Internet skills for adult learners without basic digital literacy skills. Through using a case study approach with the DC Public Library, the creation and testing of *Hello Internet!* provided insights as to how an online interactive starting point is possible. Over the course of the three stages of this project, certain common insights emerged.

7.1.1. Necessity of Library Support

The *Hello Internet!* prototype would not have been possible without the support of the DC Public Library. Creating an online starting point requires a significant investment of time and effort. The DCPL helped communicate and coordinate with the different stakeholders during each stage. The scope of the DCPL involvement was not limited to only the computer class staff members as members from other departments were involved in Stages 1 and 2 of the project. Without the strong support of public library, creating an online starting point would be a tremendously difficult task.

7.1.2. Frequent Collaboration with Different Stakeholders Throughout the Process

During the Stage 1 interviews, a DCPL staff member stated that "Everyone is somebody's trainer, but a trainer is not everyone's trainer." When taking computer classes at the DCPL, the staff member often encourages patrons to take the same class from different volunteer computer instructors to enforce what they learned before but also learn the material from a different perspective. *Hello Internet!* similarly benefited from having multiple perspectives over the course of collecting requirements for the prototype in Stage 1, developing the prototype in Stage 2, and testing the prototype in Stage 3. By understanding and integrating the perspectives of DCPL staff members, volunteer computer instructors, and adult patrons, the *Hello Internet!* prototype became representative of more than just the primary investigator's perspective. This collaboration helped improve all aspects of the prototype from the overall content of the lessons to changing the way pictures are labeled on the screen.

7.1.3. Iterative Software Development Methodology

Employing an iterative software development methodology helped make *Hello Internet!* a better online starting point. *Hello Internet!* could have been developed after collecting the data from Stage 1 and then proceed directly to user testing. However, by doing so, the online starting point would have lost some key advantages. By developing iteratively, the primary investigator was able to spend time on the highest value features during each iteration. The primary investigator worked with DCPL Customer Training Coordinator after the conclusion of Stage 1 to prioritize potential prototype features. The iterative development process allowed the primary

investigator to collect, prioritize, and integrate the feedback from stakeholders during Stage 2. This process resulted in new features not identified during Stage 1 that improved the overall quality of the prototype such as breaking down the content into shorter easier to understand sentences for adult learners.

7.1.4. Providing the Proper Context For the Online Starting Point

Hello Internet! is an online starting point intended for adult learners who lack basic Internet skills. Creating a website for people who may have never used a website before comes with its own challenges, and one of these challenges is determining where and when users interact with the online starting point. The prototype's target users would not likely be able to find this resource on their own. As shown in the survey results for Stage 1, patrons are more likely to hear information about DCPL services and programs through friends or the physical handout copy of the computer class calendar.

Before this study, the DCPL offered SPOT classes or Self-Paced Online Training where patrons could use the computer lab to practice their Office skills, typing skills through Mavis Beacon, or go online to learn more about computers own their own where a volunteer computer instructor is available to answer any questions or comments. By modeling the *Hello Internet!* classes off of these SPOT classes, the online starting point was given a context that patrons were already familiar and comfortable with. Patrons were given a handout during the class with instructions on how to reach the online starting point after the class is over to continue learning. If the *Hello Internet!* prototype continues to be used at the DC Public Library, offering future *Hello Internet!* classes and integrating the online starting point as a complementing resource for patrons to explore during SPOT classes or Web I Basics classes will help to increase the success of using this online starting point approach.

7.2. Study Limitations

This research study has several limitations in terms of reliability and validity. A significant limitation of this research study is its external validity. Using one public library when conducting interviews and testing the prototype to gauge its effectiveness limits the representativeness of the study's results and how generalizable the results are to other public libraries and library patrons. This issue also negatively impacts the ability of other researchers to repeat the study and reach the same results. Because one researcher conducted the entire study, this study also faces threats to its internal validity in how the data was analyzed.

All threats to reliability and validity in this study cannot be eliminated. However, by using different research methods such as interviews, surveys, and user testing, this study aimed to increase its rigor and provide opportunities to triangulate results. In addition, the case study approach allowed the research question to be explored in question's real world context, which was a key component in understanding how technology in a public library context can help adult learners learn and practice digital literacy skills.

7.3. Future Work

While answering this study's research question, more research questions and areas emerged as possibilities for future work. These research questions are listed below:

How can an online starting point help adult learners with accessibility needs learn and practice basic Internet skills?

During Stage 2, the primary investigator learned that there are technology tools that teach how to use a screen reader like the TypeAbility software tutorial program for JAWS. However, there is not an equivalent tutorial program for how to use the Internet. Given that much of the World Wide Web is inaccessible, knowing how to navigate is a significant challenge that often requires one on one assistance. An online starting point may help serve as an additional training tool.

How can American public libraries provide an offline starting point for learning and practicing basic computer skills for adult learners without basic digital literacy skills?

PC Basics classes at the DC Public Library were some of the most popular computer classes that the library offered to patrons. Basic computer skills are needed to learn other digital literacy skills such as basic Internet skills. An offline starting point may provide more opportunities for adult learners to learn and practice PC Basics skills.

Expanding Beyond the Martin Luther King, Jr. Library

This study was performed at the Martin Luther King, Jr. Library of the DC Public Library. To strengthen the representativeness of this study, more work can be done to test the *Hello Internet!* prototype at branch locations within the DC Public Library and at other American urban, suburban, and rural public libraries. In addition, more work could be done to determine how to engage adults without basic Internet skills that the public library is not currently reaching.

Stage 4: User Testing and Web Analytics

To continue to improve the *Hello Internet!* prototype, usability testing techniques and web analytics should be performed to provide more detailed and quantifiable feedback on how adult learners use *Hello Internet!* in addition to the subjective measures such as the USE Questionnaire.

APPENDICES

Appendix A: IRB Approval Document

UNIVERSITY OF MARYLAND
INSTITUTIONAL REVIEW BOARD

1204 Marie Mount Hall
College Park, MD 20742-5125
TEL 301.405.4212
FAX 301.314.1475
irb@umd.edu
www.umresearch.umd.edu/IRB

DATE:	July 14, 2014
TO:	Steven Dodge
FROM:	University of Maryland College Park (UMCP) IRB
PROJECT TITLE:	[585008-1] Hello Internet! - An Online Starting Point for Adult Digital Literacy Learners
REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	July 14, 2014
EXPIRATION DATE:	July 13, 2015
REVIEW TYPE:	Expedited Review
REVIEW CATEGORY:	Expedited review category # 7

Thank you for your submission of New Project materials for this project. The University of Maryland College Park (UMCP) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure which are found on the IRBNet Forms and Templates Page.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of July 13, 2015.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact the IRB Office at 301-405-4212 or irb@umd.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Maryland College Park (UMCP) IRB's records.

Appendix B: Stage 1 Appendix

Stage 1 Advertisements

Stage 1 Interview Advertisement

The advertisement for the interview will be conducted via email sent to the DC Public Library staff members and computer volunteer instructors. The email template used to advertise for these interviews is provided below:

> Hi <insert name>,
>
> My name is Steven Dodge, and I have been a Computer Volunteer Instructor with the DC Public Library for two years. During that time, I have also been a part time master's student at the University of Maryland College Park. As a part of my degree, I am working on a thesis to understand how libraries can use technology to teach basic Internet skills to adult patrons.
>
> As a <DC Public Library staff member/Computer Volunteer Instructor>, I would like to interview you as a part of this study to collect your thoughts and opinions about how basic Internet skills are taught at the DC Public Library. The interview should take no longer than 30 minutes and will take place at the DC Public Library. I can interview you <during your work day at the DC Public Library / before or after the computer class you teach> or at a time that works for you.
>
> If you have any questions or comments about the study and/or the interview, please let me know.
>
> Thank you for your consideration,
>
> Steven Dodge
>
> Email: sdodge@umd.edu
>
> Cell: 484-333-2355

Stage 1 Survey Advertisement

The advertisement for the survey will be conducted in person during the DC Public Library computer classes to adult learners. The script used to advertise for the survey is provided below:

> My name is Steven Dodge, and I have been a Computer Volunteer Instructor with the DC Public Library for two years. During that time, I have also been a part time master's student at the University of Maryland College Park. As a part of my degree, I am working on a thesis to understand how libraries can use technology to teach basic Internet skills to adult patrons.
>
> As adult patrons learning computer skills at the DC Public Library, I would like to give you a 10 question survey to collect your thoughts and opinions about how basic Internet skills are taught at the DC Public Library. The survey should take no longer than 15 minutes and will take place at the DC Public Library. Taking this survey is optional, and no identifying information will be collected such as your name or date of birth. If you are interested in participating in this study to improve how basic Internet skills are taught at the DC Public Library, please raise your hand so I can give you the consent form providing details about the study and the survey itself. Thank you for your time.

Stage 1 Interview Questions

Purpose: The following document provides the interview questions that will be used during Stage 1. These interview questions were referenced in the Initial Application Part 2 Procedures section.

Before the Interview: Before the interview occurs, the Principal Investigator will provide the subject with the consent form to sign. If the consent form is signed, then the interview can continue.

Spoken Introduction by Principal Investigator: The purpose of this interview is to collect your thoughts and opinions about how basic Internet skills are taught at the DC Public Library. This survey is a part of a research study being conducted at the University of Maryland's College of Information Studies. This study aims to understand how an online starting point can help adult learners learn and practice basic Internet skills.

Your responses to all questions are anonymous. I will be taking notes during the interview to record our conversation. If at any time you feel uncomfortable, you can quit the interview at any time. Your thoughts and opinions are very important to us to understand and suggest improvements for how basic Internet skills at taught at the DC Public Library.

Question 1: What is your past experience with the Computer Instructor Volunteer program at the District of Columbia Public Library?

> *Follow-up Questions:* What kind of classes have you taught? Which classes do you currently teach? Which classes do you prefer to teach?

Question 2: When you are teaching, how do you present the skills in class?

> *Follow-up Questions:* Do you rely on PowerPoint presentations? Do you walk through the skills with the class? Do you give the class exercises to complete that are related to skill being taught? How do you adjust your presentation to reach different audiences?

Question 3: What basic Internet skills do you think beginner adult learners need to learn?

> *Follow-up Questions:* Why are these Internet skills important?

Question 4: What do you think are some of the largest obstacles for adult learners to begin learning how to use the Internet?

> *Follow-up Questions:* Have you seen these obstacles in the classroom? How have you helped adult learners face these obstacles? What seems to work the best in teaching these skills?

Question 5: What are some of the largest challenges that you have encountered teaching adult learners new skills?

Follow-up Questions: How have you faced these challenges? What have you learned by facing these challenges?

Question 6: I plan on creating an online starting point for adult learners to practice basic Internet skills similar to Khan Academy and/or Codecademy where learners would watch a video about a skill and then would be given an opportunity to practice the skill receiving feedback on their performance. Do you have any suggestions or ideas about what such a tool might look like or how it might function?

Follow-up Questions: What challenges do you foresee? These are the skills I was planning on focusing on. What skills would you add? What skills would you remove?

- Using a search engine like Google to learn and practice searching for information.
- Navigating a website using the DC Public Library's website as a guide
- Completing an online web form using an online job application as a guide

Stage 1 Interview Notes

Interview 1 July 29, 2014

Q1) DCPL instructor started teaching in 2013. DCPL instructor teaches 1 class per month. DCPL instructor mostly teaches PC Basics, has taught Web 1 Basics a few times, and has taught Introduction to HTML 1 once. In the DCPL instructor's experience, teaching PC Basics was the most useful because overall computer skills are taught. In Web 1 Basics, "people are already familiar with websites."

The DCPL instructor had the ability to add another class, the instructor would add PC Basics II. Based on his experience with helping his parents, he would add information about how to use storage, how to use shortcuts, how to install software, viruses, malware, and taskbar utilization.

Q2) DCPL instructor customizes the teaching script based on prior experience. The DCPL instructor does not see why changing the views on Windows Explorer is important to include, so he does not include it. The DCPL instructor emphasizes using search in the Windows start menu, how to use the task bar, and how to take advantage Windows like snapping windows to the sides of the screen.

The DCPL instructor structures the classes "by watching [the instructor] complete the task first, then [the instructor] talks through the task, and then [the instructor] asks the class to complete the task together."

Classes tend to have different skill levels. If a user has basic navigation challenges, the DCPL instructor asks the student "to just follow along and keep coming back." Students often help other students learn skills who are struggling. Typing tends to be challenging for users taking some users up to 60 seconds to type the word "mother". Resizing the window can be difficult for those who do not have fine motor control. The types of clicks - right click, left click, double click, and click - are difficult to classes to connect.

Q3) Typically, no Internet skills are taught in the DCPL instructor's PC Basics class. When teaching Web 1 Basics, the DCPL instructor likes to focus on tabs and bookmarks, showing the types of Google searches such as Images, News, and Web, using Wikipedia for hyperlink demonstrations. The DCPL instructor likes "to connect skills with their experience that users may have". The instructor does not spend time providing academic definitions for technology concepts because "they are useless for the class."

Q4) The Web 1 Basics class is easier to teach as most of the challenges involve differences in default settings and browser issues. Typing also can be a challenge. Showing how to play videos is not demonstrated in Web 1 Basics. The Web 1 Basics class is structured by the instructor in the same way as the PC Basics class.

Q5) "General accessibility" can be an issue as vision and fine motor movements can be a problem. Finding the settings to change font size for example are not obvious. There is often confusion around the taskbar in how multiple windows are displayed and how to show and hide windows. Class members rarely own their own personal computers and usually do not ask questions about phones or tablets.

Q6) Some useful skills that should be considered to be added to the online starting point are:

- "Signing up for an email account"
- "Understanding accounts" - using your email address as a user name but using a different password
- Emphasizing "cloud based framework" like Google Docs

Interview 2 August 2, 2014

Q1) The coordinator has been running the program for 14 years and has taught every class offered in the curriculum. PC Basics is the most critical and is needed for future classes. PC Basics is the coordinator's favorite class to teach because the coordinator is "interested in seeing the light go on that they can do this". "Young people are not intimidated" by new things, but older people tend to be. The coordinator also enjoys teaching Microsoft Office and web development classes.

Q2) The coordinator's basic procedure for teaching classes is to introduce the terminology first by "touching it, naming it, and defining it." It is important to call the concepts by their official name - for example, there are four names for the computer. In PC Basics, after identifying hardware, the software is then explained. It is important to have time for the students to play around. The coordinator uses mouse games such as memory games. "Leaving with a fun activity encourages learning" and for patrons to come back.

The coordinator adjusts the speed of instruction once exercises begin because learners usually do not have a problem with the terminology. If the coordinator notices that people are struggling, repetition is key "to not leave people in the dust." Instructors have to be careful with what they say. "Put your mouse on the Recycle Bin" caused a patron to physically put their mouse on the Recycle Bin on the screen. Executable and understandable commands are essential.

When the coordinator mentors other trainers, the coordinator suggests that trainers attend other trainer's classes to absorb best practices. "Everyone is somebody's trainer but a trainer is not everyone's trainer." Trainers are not going to get every student. "There is no need to cover everything in the curriculum" because 2 hours is a short amount of time. It is always better to go slower. The curriculum is flexible where trainers are encouraged to answer questions and "free to add their expertise." The scripts for classes are meant to be an anchor for the trainers to follow.

Q3) Adult learners often struggle when navigating online forms because they have to use online forms due to health, social security, and/or job reasons. Moving between fields is always an issue where learner's press the Enter key to move between fields instead of the using the Tab key.

Launching the browser, how to surf, and how to use links are also important skills. Understanding how the mouse icon changes from a pointer to a hand is another skill. Bookmarking helps learners reduce typing and access their favorite sites faster. Understanding that http:// no longer needs to be typed in, and the differences between http:// and https:// are also important.

Online forms are critical for applying for jobs in the midst of the library's important role for "job recovery." However, the library's helpful efforts are often thwarted by the check this box if you

received no assistance on job application forms. "Knowing the English language" is fundamental for navigating and understanding online forms.

The coordinator emphasized the importance of citing sources when copying and pasting information from the web and into a Word document because plagiarism is felony.

Customers often ask to learn more about how to attach a file to an email. The library's service is "to provide public access" to computers, Internet, and email. Some customers have asked for education in using tablets and smartphones, but customers need to bring their own tablets or use the tablets in the Digital Commons.

Q4) The biggest challenge for learners using the Internet is knowing English, having keyboard skills, having mouse skills - if you have a large hand it is difficult to move the mouse. Many of the issues involve the mechanics of using the hardware. To avoid the confusion of double clicking, the coordinator tells "the user to click once and then press Enter." Eye coordination is often a contributing factor to the mechanics issues. The smallest challenge is the terminology.

Q5) "Having no conceptual experience of computers makes learning the skills harder." The coordinator's mother had experience creating documents in her federal job, so she was able to apply her knowledge of documents to her learning the computer.

Q6) The coordinator thinks that in terms of the library's digital readiness strategy, this tool can help educate learners in "how to construct simple and complex queries" starting with "one word queries first." The coordinator provided a library example of a patron asking for a book on economics to what the patron really wanted was a book on how to balance a checkbook. Using natural language such as "my cat has diabetes" can provide relevant search results. The filters used by Google such as Images, News, and Shopping help narrow the search results.

The challenges of this tool are to have learners "acknowledge that they need help to learn skills" and how/where to advertise the tool to users. The portal should be "self paced" especially when the portal is not geared towards certification. The site should have an indication of the "measurement of progress." The indication should be "qualitative and humane."

Interview 3 August 9, 2014

Q1) The instructor started coming to class in 2004 and found out about the classes at the library from a neighbor. She attended when there were only 10 computers in the lab and competition for each computer. She sat in the back and often found herself assisting other students in the class. After two years, she officially became an assistant and then eventually later on as an instructor. As a student, she often stayed at the library from 9am to 9pm taking classes. She volunteers because she does it "out of joy" and she loves to do it thus making it not work at all. She "sees herself in other learners" and their need to receive help.

As an instructor, she has taught PC Basics, Mavis Beacon, Office Basics, HTML, Word 1 and 2, and Excel 1 and 2. She has taught web basics outside the library. She likes to teach because of the variety of classes offered.

Q2) A major point of emphasis is providing opportunities for learners "to continue learning outside of the classroom." F1 is important to get help and know to use the suggestions or use key terms to search. She emphasizes hands on experience as well by having learners practice skills. She keeps beginner and advanced students on the same page by using keyboard shortcuts.

Q3) The following skills are important for beginners to learn:

- Combination keys
- Using the address bar - lowercase letters with no spaces, can perform searches
- Back and forward buttons
- Using the magnifying glass button to search
- Accessing the help with F1
- Knowing the different parts of a search engine result
- Minimizing browser and where it goes
- History
- Refresh
- Stop - then refresh to load page faster
- Home button
- Favorites
- Zoom

- Internet options and clear history
- Cookies
- Private browsing
- Http vs https not everything is secure
- Printing and print preview
- Tabs
- Menu bar
- Reset IE
- Advanced search options

Q4) Paying for service and accessing service outside of the community are obstacles for learners. The Internet often forgives your misspellings by using didn't you mean or guessing what you are typing. Safety is an important concern in terms of avoiding viruses and knowing what to do when your computer freezes up instead of buying a new computer. Having a personal computer to use is an obstacle. Computer classes in the region often offer free computers after taking classes for five weeks. Understanding bandwidth limits for wireless Internet is needed to avoid paying extra fees. Accessibility is a challenge that can sometimes be overcome by using Windows Ease of Use Center. Typing is challenging where resources such as Mavis Beacon,powertyping.com and Byte Back offer online tutorials that can be hard for beginners to download and use. Similarly, the mouse games on the DC public library computers help with mouse skills.

Q5) She helps new learners face these obstacles by providing access to resources that provide learners with opportunities to learn.

Q6) see Q3

Interview 4 August 12, 2014

Q1) She is a manager for the Adaptive Services department in the DC Public Library for the past year and was initially an interim manager. She has been with the department for 10 years. She also serves as the ADA coordinator of the library as well as the Regional Library for Adaptive Services for the Library of Congress.

She has informal experience teaching patrons computer and Internet skills. Children are generally savvy with technology but need to know that there are things to learn beyond Google.

Q2) Adaptive Services offers classes lasting 8 to 10 weeks on a Wednesday and Thursday teaching accessibility tools like JAWS. These classes are usually geared towards traditional tools aiding in low vision problems. Basic keyboard and computer skills can be an impediment and is usually a part of learning these tools. A staff member is in charge of teaching these classes and has a defined curriculum that builds logically and sequentially. Volunteers and staff members often help out and the classes are typically formatted to provide one on one instruction. Learners are given a pre-assessment test to understand if the users have basic or advanced skills. After taking the class, learners are given a certificate of completion to provide a sense of accomplishment. The classes provide a sense of community and a social component between people which technology tends to isolate.

The department teaches accessibility software for all kinds of platforms including smartphones, tablets, and desktops. The department gets any software or hardware that it can get to test the stuff including Google Glass. The department is a part of the Accessibility DC conference on October 11.

The DCPL system has 20 concurrent JAWS user licenses at one time but getting support from the IT department can be challenging.

Q3) A big part of learning the Internet is learning how to use JAWS and other accessibility tools. JAWS screen commands are a lot to learn.

Q4) "A large part of the web is not accessible" which is a large obstacle for new learners to overcome. Screen accessibility software is dependent on the websites in how well they conform to the standards. Knowing how to zoom and other accessibility tricks help make websites easier to navigate, but some sites like the DC Public Library can crash accessibility software. Even if a website is 508 compliant, sometimes a part of the website is not compliant such as credit card forms are often not. For adults with accessibility needs, there is often a vicious circle of not being taught in the first place and then being intimidated by the technology. Adults with accessibility needs usually find the DC Public Library's Accessibility Department when they sign up for a new library card, through community organizations, and through advertising to blind advocating organizations.

Q5) Some of the largest challenges in teaching adult learners new skills is "finding the audience, getting participation, and managing expectations" in that the learning will not be instantaneous. Another large challenge is the economic component of the digital divide where people do not have technology at home. Another challenge is training the staff to be knowledgeable with accessibility tools.

Q6) The online starting point should be accessible and easy for users with low vision. Staying safe on the Internet should be added as a lesson to learn - strong passwords, phishing, and Prince of Nigeria email scams. In addition, users should learn different accessibility features available to them in zooming and changing color.

Interview 5 August 12, 2014

Q1) The staff member is a member of the Adult Literacy Resource Center. He has come from a background of teaching adults to prepare for the GED and currently helps train teachers on how to teach basic readings skills for the GED. The GED test has changed from a paper and pencil test to a computer test that is more rigorous and administered by a for profit institution. The testing center is temporarily offering paper and pencil tests but the future is 100% on the computer. In the new GED test, common core standards are more emphasized, more algebra skills are needed whereas before people did not need to know algebra to pass, more reasoning and language arts sections asking for critical thinking through writing.

Q2) The Adult Literacy Resource Center depends on other organizations and informal one on one training to teach computer skills needed to complete the test, take advantage of online resources, or register for the test online. One organization that was Byte Back that offered a workshop at the DC Public Library that was focused on basic keyboarding and mouse skills. Through Byte Back, the DC Public Library has access to the online training resource of GED Academy which DCPL staff members issue accounts to users who want to use the tool. The DC Public Library also has the Learning Express Library online resource for GED users. In general, computer skills are often taught in conjunction with GED subject skills. Because the GED is administered by a for profit institution and the $24 cost per practice test, the DC Public Library offers online tutoring one on one drop in appointments to help students get prepared before taking the practice test or before/while taking a preparation course. The GED official test costs $120. As a part of the online tutoring, students take a test to assess their skill level and what areas they need to improve. Patrons are typically referred by community based organizations, organizations who have full GED training classes, and through the 20 year old literacy helpline that the DC Public Library operates.

Q3) There are several different types of computer skills needed to answer questions on the GED. For example, drag and drop is used differently in the different subject areas. Drag and drop can be used to order events in a linear sequence for language arts, drag and drop characteristics of people in a short story for language arts, create a line by dragging and dropping an algebraic equation into a chart. Multiple choice, checkboxes, and text areas are used. Hotspots are used where users click on an area to create a graph point and then later a line. Drop down menus are used for users to make corrections to the grammar in sentences or to fill in the blank.

Q4) Reaching the online resources for the GED is always a challenge. Registering for the GED online can be challenging as well but the preparation process usually takes a year. Students may not be taking the GED in favor of the external diploma program that emphasizes life skills for people 25 years or older that still has a paper and pencil option for now.

Q5) The largest challenge teaching adult learners new skills is “how to break down advanced skills” and “how to quickly teach skills that learners need so they feel that they are achieving

something." "Retention is hard in adult literacy. More rigorous tests and computer tests have forced people to stay in school longer. How do you get people to stay?" Emphasizing guidelines and different methods that reach different learning channels is essential. Paragraph frames such as "I agree with this because of this" help learners structure their arguments quickly and critically. Manipulatives like Math-U-See help learners of all ages understand complex algebraic expressions.

Q6) Helping users get to online resources and setting up accounts. For example, users often have problems accessing the Learning Express Library from the DCPL website. Then, users have to create an account for this resource using an email address that they may or may not have. Then, users need to remember their username and password. Getting used to this process has a steep learning curve for adult learners based on prior experience.

Interview 6 August 14, 2014

Q1) He was a branch Manager at Tenley with a technology background. When the DC Public Library cleared the business and technology floor and created the Digital Commons, he became the manager of the Digital Commons. The Digital Commons is about a year old. As a manager, he is in charge of the Digital Commons staff, programming, equipment, and public safety.

He has taught classes with 3-D printing and CAD and will teach a class about electronics. The Digital Commons offers a plethora of classes ranging from Ruby, Adobe Creative Suite, WordPress, how to make a gif, and raspberry pi programming. The Digital Commons is expanding to have two new maker spaces - one AV production studio and another fabrication studio.

The ideas for Digital Commons classes come from staff members and from students alike. Libraries are not often thought of as "cutting edge", but libraries can become "bleeding edge." "We are reacting to what customers expect, and customers want the next step." The Digital Commons also looks to outside organizations to see what they are doing.

Q2) When teaching classes at the Digital Commons, there are some computer skill gaps that have to be dealt with. The Digital Commons serves everyone - "from the person with no clue to the person who wants to make a robot." Staff members often experience frustration serving patrons with lower skill levels. However, the Digital Commons offers the opportunity for patrons to schedule one on one tutoring sessions to relax the time constraint worries on staff members. The Digital Commons has a digital bar where multiple types of devices with all of the operating systems are showcased and allow people to gain hands on experience with various technologies. Staff members have access to Lynda.com to learn how to use technology, and soon patrons will also have access to learn on the site as well. The Harvard Extension School and Universal Class are other resources used for training by the Digital Commons.

Q3) Adult learners need to understand PC Basics before learning about the Internet. They need to understand the hardware and the GUI. As far as email specific skills, setting up email accounts is a basic skill that serves as an introduction as to how online forms work, which help set learners on a path towards using online forms for more complicated forms such as online job applications and taxes. Knowing how to use information repositories such as Wikipedia that are clean and easy to use are also important.

Q4) Having basic PC skills is the largest obstacle for adult learners to begin learning how to use the Internet.

Q5) The largest challenges that he has encountered teaching adult learners new skills is "time and patience." When users come to the library to learn a skill, chances are that they are already "frustrated and understand that there is a barrier." However, they think that they have to "climb over the barrier" when all they need to do is "step over the barrier." Patrons often need skills for

their jobs and do not want to be taught or babied. They want the teacher to do the skill for them. "Do it for me." The Digital Commons empowers patrons by showing them what is possible such as 3-D printing. The 3-D printer and other technologies are powerful advertisements that get patrons hooked and wanting to know more about computers. The DCPL computer class program on the third floor is the "elementary school where patrons get the basic skills." The Digital Commons is the "middle school" where patrons can start learning how to apply their skills using software tools. The maker spaces is the "high school" where patrons can take their knowledge and apply it to real world scenarios to build things. To motivate patrons to continue learning, the Digital Commons is looking at a "badging and certification system" that combines elements of gamification of giving motivation and credibility in the certification. The open software foundation Mozilla has a badging system that he would like to apply to the DCPL. The Digital Commons would serve as "a breeding ground" for patrons to practice job skills before getting a job. During the economic downturn, many people lost jobs and the traditional thinking of getting a degree no matter what did not prove to be a prudent strategy for everyone. Colleges, trade schools, and other institutions should all be considered. Getting a large partner like Google would lend credibility to the certifications awarded.

Q6) "Instructional design is hard. We are not teachers, and flow is important. Basic is better. Keep it simple." Lynda.com is a great example that shows you step by step what to do and does it slowly. "Text, audio, and video" are important to include because people learn in different ways.

Interview 7 August 14, 2014

Q1) She has been a computer instructor volunteer for 1 to 2 years. She was looking for different volunteer opportunities and wanted to gain experience teaching. The computer class program was a safe place to volunteer. She has taught Web 1 and Word 1. She has learned how much she loved teaching people. She has experience tutoring kids for tests and found that like the computer class program, learners "just need the confidence they need to learn" and apply skills. "Teaching PC Basics requires the patience of a saint. " In the classes that she teaches, learners are closer to gaining skills that they can use and more lightbulb moments occur.

Q2) She starts each class by "explaining why she teaches the class, why the skills are important, why she is good at these skills because she does them every day, and asks the class why they are here" if the class is small enough. She uses a mix of follow me and exercises to help her students learn and makes use of the class script. When she has students at different levels, she often adjusts through providing one on one help to learners.

Q3) While she doesn't want students to worry about terminology over functionality, she has found that providing background helps provide context to learners. Internet skills like knowing how to find good information, protection from scams, searching for jobs, and how to use email are important skills. Understanding what you say can lead to floppy disk saving questions (what if I don't have a floppy disk to save my document).

Q4) Obstacles include the volume of information that a search engine returns and losing their place in the browser. Large obstacles include "a lack of confidence and lack of understanding of what you can do using the Internet." She has learners "focus" on the task and one thing at a time. By focusing, learners can gain "confidence."

Q5) "A lack of confidence in abilities and fear of having to know too much - I always have to ask people for help" -are challenges. For older learners surrounded by family that grew up using the technology, learning technology can be intimidating. She validates their educational journey through encouragement.

Q6) Videos are important. The prototype should get across the value of the class, need for repetition, and confidence in the learner. "Making it personal" will help encourage learners.

Stage 1 Survey Questions

Purpose: The following document provides the survey questions that will be used during Stage 1. These survey questions were referenced in the Initial Application Part 2 Procedures section.

Before the Interview: Before the survey occurs, the Principal Investigator will provide the subject with the consent form to sign. If the consent form is signed, then the survey can continue.

The purpose of this survey is to collect your thoughts and opinions about learning basic Internet skills at the DC Public Library. This survey is a part of a research study being conducted at the University of Maryland's College of Information Studies.

Your responses to all questions are anonymous. If at any time you feel uncomfortable, you can quit the survey at any time. Your thoughts and opinions are very important to us to understand and suggest improvements for how basic Internet skills are taught at the DC Public Library.

Thank you for your participation!
Steven Dodge
sdodge@umd.edu

1) How often do you visit the DC Public Library?

Please select the appropriate response below.

- First time visiting the DC Public Library
- A couple times during the year
- At least once every month
- At least once every week
- At least once every day

2) How did you hear about the computer classes offered at the DC Public Library?

Please select the appropriate response below:

- DC Public Library Website
- Flyers about computer classes
- Google, Bing, or other search engine
- Facebook
- Friends
- Other

3) How often do you attend computer classes at the library?

Please select the appropriate response below.

- First time attending a computer class
- A couple times during the year
- At least once every month
- At least once every week
- At least once every day

4) Which DC Public Library computer classes have you taken so far?

Please select all classes that you have attended.

- Access
- Basic Programming Code
- Email Basics
- Excel I
- Excel II
- Excel III Advanced
- HTML Basics
- HTML 5
- Internet Job Seeking 101
- JavaScript
- Mavis Beacon
- PC Basics
- PowerPoint
- Web I Basics
- Web II Intermediate
- Word I
- Word II

5) Why did you attend today's computer class?

Please select all reasons that apply to you

- I wanted to learn how to use the Internet
- I wanted improve the Internet skills I already had
- I wanted to meet people who were also interested in learning about how to use the Internet
- I wanted to ask a specific question about using the Internet
- A friend recommended me to join today's class

- Other:

6) What skills did you want to learn from today's computer class?

Please select all skills that you want to learn.

- Distinguish between the Internet and the www.
- Identify and talk about the structure of the Internet and how it works
- Identify and engage the window features of the Internet Explorer (IE) web browser
- Activate hyperlinks and learn how to use them to advance one's search
- Differentiate between a web page and a website
- Distinguish between a search engine and a directory
- Conduct simple searches on the www, while exploring high interest sites
- Copy and paste text and graphics from the Web to MS WORD
- Engage the Source Mode (under View Menu) to view the HyperText Mark-up Language (HTML) that supports the Web environment
- Other:

7) Are there any skills that you would have liked to learn that were not covered during today's computer class?

8) How often do you use the Internet?

Please select the appropriate response below.

- First time using the Internet today
- A couple of times during the year
- At least once a month
- At least once a week
- At least once a day

9) When you are using the Internet, what device are you using to access the Internet?

Please select all devices from which you access the Internet.

- Desktop

- ☐ Laptop
- ☐ Smartphone (ex. iPhone, Galaxy S4)
- ☐ Tablet (ex. iPad, Kindle, Surface)

10) From where do you usually access the Internet?

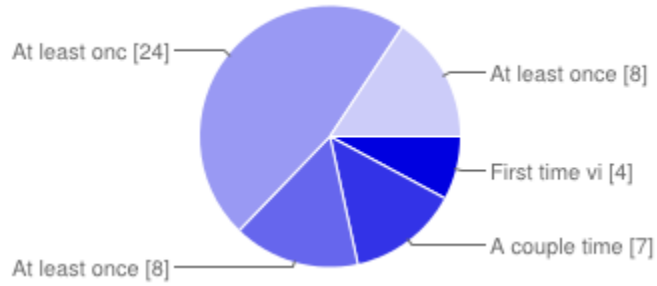
Please select all locations from where you access the Internet

- ☐ At home
- ☐ At the library
- ☐ At work
- ☐ At school
- ☐ At a friend's or family member's house
- ☐ At a restaurant (ex. Starbucks, McDonald's)
- ☐ Other: [ ]

Submit

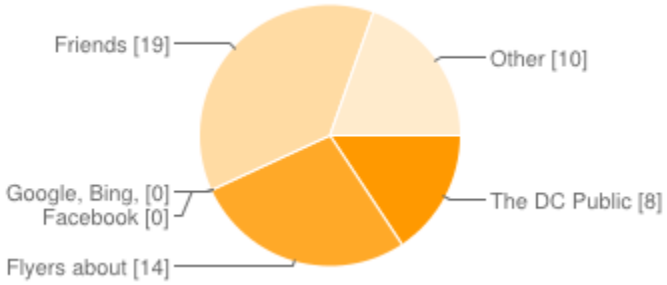
Stage 1 Survey Responses

1) How often do you visit the DC Public Library?



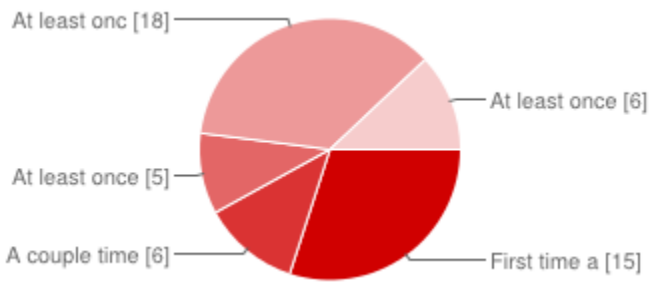
First time visiting the library	4	8%
A couple times during the year	7	13%
At least once every month	8	15%
At least once every week	24	46%
At least once every day	8	15%

2) How did you hear about the computer classes offered at the DC Public Library?



The DC Public Library Website	8	15%
Flyers about computer classes	14	27%
Google, Bing, or other search engine	0	0%
Facebook	0	0%
Friends	19	37%
Other	10	19%

3) How often have you attended computer classes at the library?



First time attending a computer class 15 29%

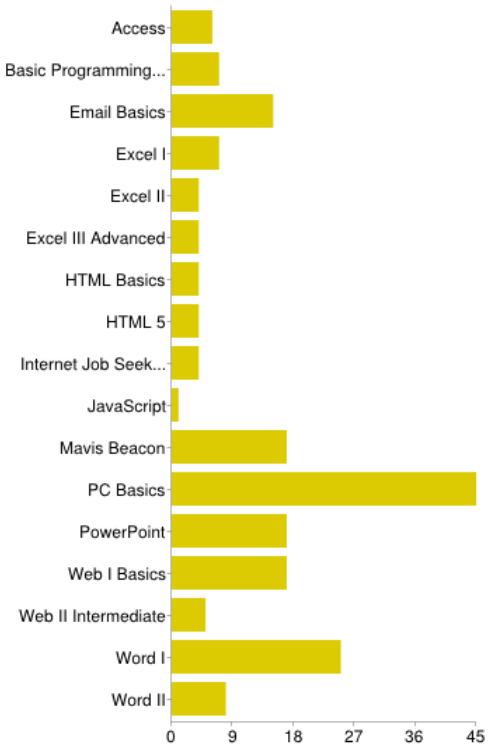
A couple times during the year 6 12%

At least once every month 5 10%

At least once every week 18 35%

At least once every day 6 12%

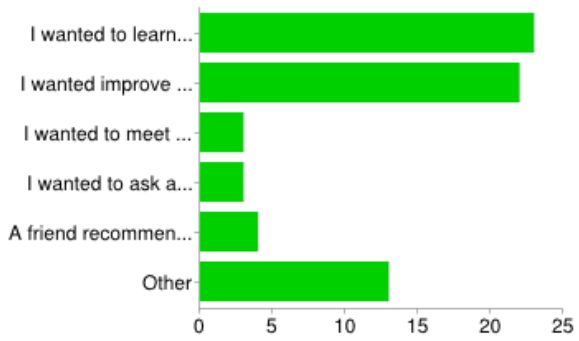
4) Which DC Public Library computer classes have you taken so far?



Access 6 12%

Basic Programming Code	7	13%
Email Basics	15	29%
Excel I	7	13%
Excel II	4	8%
Excel III Advanced	4	8%
HTML Basics	4	8%
HTML 5	4	8%
Internet Job Seeking 101	4	8%
JavaScript	1	2%
Mavis Beacon	17	33%
PC Basics	45	87%
PowerPoint	17	33%
Web I Basics	17	33%
Web II Intermediate	5	10%
Word I	25	48%
Word II	8	15%

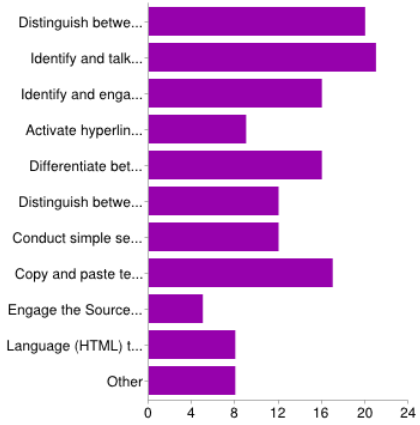
5) Why did you attend today's computer class?



I wanted to learn how to use the Internet	23	44%

I wanted improve the Internet skills I already had	22	42%
I wanted to meet people who were also interested in learning about how to use the Internet	3	6%
I wanted to ask a specific question about using the Internet	3	6%
A friend recommended me to join today's class	4	8%
Other	13	25%

6) What Internet skills do you want to the learn from today's computer class?



Distinguish between the Internet and the www.	20	38%
Identify and talk about the structure of the Internet and how it works	21	40%
Identify and engage the window features of the Internet Explorer (IE) web browser	16	31%
Activate hyperlinks and learn how to use them to advance one's search	9	17%
Differentiate between a web page and a web site	16	31%
Distinguish between a search engine and a directory	12	23%
Conduct simple searches on the www, while exploring high interest sites	12	23%
Copy and paste text and graphics from the Web to MS WORD	17	33%
Engage the Source Mode (under View Menu) to view the HyperText Mark-up	5	10%
Language (HTML) that supports the Web environment	8	15%
Other	8	15%

7) Are there any Internet skills that you would have liked to learn that were not covered during today's computer class?

no

Using everything in the control panel.

want to take more then one time

How to post pictures on facebook.

More basic computer classes and professional instructors who prepare you to use the internet

jobs research in internet.

N/A

Whatever else you offer to help me conquer my fears.

How to add pictures on Facebook/copy and paste

NO

no.

How to respond to my email

yes

job search

shopping online, safety online

none

Email. howe to find people, how to shop

All aspects of the computer. I have a i-Pad

More Advance~!

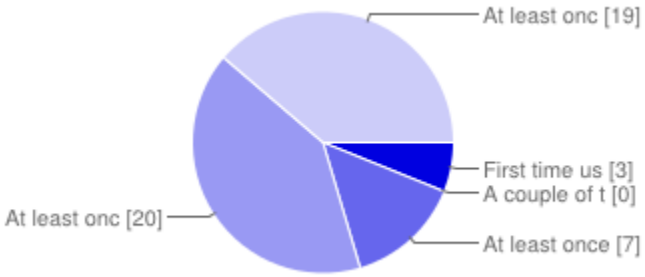
not realy I am here to learn the basic and then proceed to more information in learning the computer.

Yes

not quite.

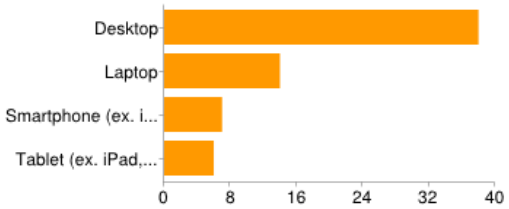
Operating system and its functions. Aplications

8) How often do you use the Internet?



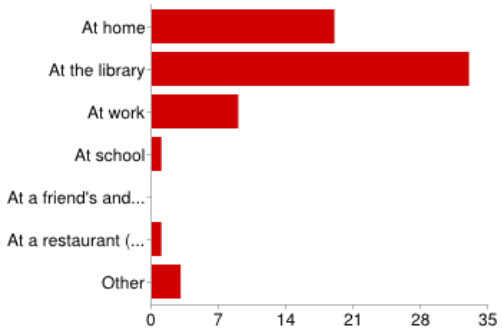
First time using the Internet today	3	6%
A couple of times during the year	0	0%
At least once a month	7	13%
At least once a week	20	38%
At least once a day	19	37%

9) When you are using the Internet, what device are you using to access the site?



Desktop	38	73%
Laptop	14	27%
Smartphone (ex. iPhone, Galaxy S4)	7	13%
Tablet (ex. iPad, Kindle, Surface)	6	12%

10) From where do you usually access the Internet?



At home	19	37%
At the library	33	63%
At work	9	17%
At school	1	2%
At a friend's and family member's house	0	0%
At a restaurant (ex. Starbucks, McDonald's)	1	2%
Other	3	6%

Stage 1 Potential New Features

Feature ID	Title	Description	Source	Priority	Effort Required	Completed	Stage
1	Add Introduction Video for Each Lesson Module	Add an introduction video for each lesson in each module of Hello Internet! to supplement the text and images.	Steven Dodge	High	High	Yes	Stage 1
2	Add a Pre-Assessment Test	Add a pre-assessment test to tell users which skills they have, which skills they do not have, and which modules the learners should check out to strengthen their skills.	Interview	Medium	Medium	No	Stage 1
3	Create Mini Videos To Visually Show Lesson Skills	Create short videos that visually demonstrate how to complete the skills explained via text. This would be achieved through screen recording software. Videos should be no longer than 2 minutes in length.	Steven Dodge	High	High	Yes	Stage 1
4	Add a glossary of terms	Add a glossary of terms used in Hello World	Steven Dodge	Medium	Medium	No	Stage 1
5	Add Help link on Every Page	Add a hyperlink for users to click on every page taking them to the page explaining how lessons work.	Steven Dodge	High	Medium	Yes	Stage 1
6	Add Keyboard Shortcuts Where Relevant	Add the keyboard shortcuts to lesson modules where applicable.	Interview	High	Medium	Yes	Stage 1
7	Make Hello Internet! 508 Compliant	Make all Hello Internet! web pages accessible and 508 compliant	Interview	High	High	Partially Completed	Stage 1
8	Add Accessibility Information to Hello Internet	How to zoom and make the Internet a more accessible place.	Interview	High	Medium	No	Stage 1
9	Add Email Account Information	Add a lesson to explain what an email account is, how to sign up for one, and how to send an email message	Interview	High	Medium	Added a short bit to the Online Forms page	Stage 1
10	Terminology Videos	Introduce terminology at the beginning of each lesson or module with a video by touching it,	Interview	High	High	Yes	Stage 1

		naming it, and defining it					
11	Add Tab key online form navigation to online form lesson	Moving between form fields by using the Tab key on the keyboard	Interview	High	Low	Yes	Stage 1
12	Add information about Internet Security	Protection from scams, HTTP vs HTTPS, Phishing, Cookies, and more	Interview	High	Medium	Added to What's a Browser?	Stage 1
13	Add information about fair use for using information found on the Internet	Citing sources when copying and pasting information from the web	Interview	High	Medium	Yes	Stage 1
14	Add measurement of progress	The site should have an indication of the “measurement of progress.” The indication should be “qualitative and humane.”	Interview	Low	High	No	Stage 1
15	Add a page explaining how to get help when you need help	The site should have an indication of the “measurement of progress.” The indication should be “qualitative and humane.”	Interview	High	Medium	Yes - added Help Link to every page	Stage 1
16	Improve mouse and keyboarding skills by providing resource	Offer resources online to help students improve their mouse and keyboarding skills independently as a part of the Getting Started page	Interview	High	Low	Yes - added to Get Started page	Stage 1
17	Add Drag and Drop to Online Forms	Drag and drop is featured on the GED test	Interview	High	Low	Yes	Stage 1
18	Add Hotspot to Online Forms or Hyperlink section	Hotpsots are used in the GED	Interview	Low	Low	No	Stage 1
19	Copying and pasting text and graphics from the Web to MS WORD	Adding a lesson describing how to complete this skill	Interview	High	Low	Yes	Stage 1

Appendix C: Stage 2 Appendix

Stage 2 Advertisements

The advertisement for the iterative feedback sessions will be conducted via email sent to the DC Public Library staff members and computer volunteer instructors. The email template used to advertise for these feedback sessions is provided below:

Hi <insert name>,

My name is Steven Dodge, and I have been a Computer Volunteer Instructor with the DC Public Library for two years. During that time, I have also been a part time master's student at the University of Maryland College Park. As a part of my degree, I am working on a thesis to understand how libraries can use technology to teach basic Internet skills to adult patrons.

As a <DC Public Library staff member/Computer Volunteer Instructor>, I would like to receive your feedback on the prototype that I am creating to teach basic Internet skills to adult patrons. The feedback session should take no longer than 30 minutes and will take place at the DC Public Library. I can interview you <during your work day at the DC Public Library / before or after the computer class you teach> or at a time that works for you.

If you have any questions or comments about the study and/or the interview, please let me know.

Thank you for your consideration,

Steven Dodge

Email: sdodge@umd.edu

Cell: 484-333-2355

Stage 2 Interview Questions

Purpose: The following document provides the iterative feedback protocol that will be used during Stage 2. This iterative feedback protocol was referenced in the Initial Application Part 2 Procedures section.

Before the Interview: Before the iterative feedback session occurs, the Principal Investigator will provide the subject with the consent form to sign. If the consent form is signed, then the iterative feedback session can continue.

Spoken Introduction by Principal Investigator: The purpose of this feedback session is to collect your thoughts and opinions about the newest iteration of the online starting point prototype that aims to help adult learners learn and practice basic Internet skills. This feedback session is a part of a research study being conducted at the University of Maryland's College of Information Studies.

Your responses to all questions are anonymous. I will be taking notes during the feedback session to record our conversation. If at any time you feel uncomfortable, you can quit the feedback session at any time. Your thoughts and opinions are important to us to understand and suggest improvements for how basic Internet skills at taught at the DC Public Library.

Prototype Walkthrough: In this iteration, the following features were added to the prototype. <Walkthrough the features and ask for feedback for each new feature. At the end, use the interview guide below to collect the overall thoughts and opinions of the user providing feedback.>

Interview Guide

Question 1: What new features that were added to the prototype did you find the most useful?

> *Follow-up Questions:* Why did you find these features to be the most useful? Will adult learners also find these features to be the most useful?

Question 2: What new features that were added to the prototype did you find the least useful?

> *Follow-up Questions:* Why did you find these features to be the least useful? Will adult learners also find these features to be the least useful?

Question 3: These are the features that I will be adding in the next iteration. Will these features add more value to the prototype?

> *Follow-up Questions:* Do you have any features not mentioned that should be added to the prototype?

Stage 2 Interview Notes

The following notes were taken during the Stage 2 Interviews.

August 23, 2014 DCPL Computer Class Coordinator

Question 1: What new features that were added to the prototype did you find the most useful?

- The overall layout of the site was great.
- The large text size was very useful.
- The content was great! The opportunities to practice what you are learning through the exercises in the lesson and the learning checks will help adult learners gain confidence in their skills.

Question 2: What new features that were added to the prototype did you find the least useful?

- The labeling of the images on the pages as Figure was confusing. Use Picture instead.
- Various grammar and styling corrections provided by the interviewee.
- In the Search Engine module, make sure to emphasize that learners can use plain English to find what they are looking for.
- In the Online Forms section, mention moving between forms using the Tab key.

Question 3: These are the features that I will be adding in the next iteration. Will these features add more value to the prototype?

- When adding videos, make sure to begin and end with a video of yourself to humanize the videos.
- Add the Digital Commons as a resource in the Learn More sections for each module.
- See features spreadsheet for prioritization done during the interview

September 8, 2014 DCPL Computer Volunteer Instructor

Question 1: What new features that were added to the prototype did you find the most useful?

- The videos were awesome
- The slide showing what was and was not a hyperlink was helpful.
- Online forms was awesome and something that I would use during a class
- The overall layout of the site was easy to follow
- I would use this in my classes.
- I didn't know that's how you get to the advanced search screen.

Question 2: What new features that were added to the prototype did you find the least useful?

- Sometimes, there was a large amount of text on the screen (first paragraph of Get Started). Breaking up these paragraphs with bullet points would be helpful.

Question 3: These are the features that I will be adding in the next iteration. Will these features add more value to the prototype?

- Emphasize how the cursor changes when hovering over a hyperlink, video, text field, etc
- Add information about how to share videos
- Add a diagram showing the differences between internal and external hyperlinks
- Highlight or bold free Wi-Fi
- Make some of the web pages larger in the pictures and video - zoom in
- Add information about how to bookmark or favorite web pages
- For the address bar practice, www.dclibrary.org should be an acceptable url to use.
- Differentiate between Google Chrome and Google
- Define keywords when searching for information on the Web.
- Add information about possible error messages and how to deal with them - 404 errors or not being able to copy images due to copyright protections
- Review different domains and what they mean - org, edu, com, gov,...

September 15, 2014 DCPL Adaptive Services Staff Member

Question 1: What new features that were added to the prototype did you find the most useful?

- The multiple ways of presenting information and showing instead of telling - text, pictures, video was useful. Mapping audio literacy to Braille literacy allows blind students learn how to read Braille.

Question 2: What new features that were added to the prototype did you find the least useful?

- The home page for the site is an interesting case of how you cater to users. By emphasizing the mouse, you are being precise but excluding the people who use screen readers. If you are general, you could apply to everyone but lose everyone at the same time by not being precise. Using the Enter key is a good compromise that doesn't get you quite to 100% but gets close.

Question 3: These are the features that I will be adding in the next iteration. Will these features add more value to the prototype?

- To make the content more cognitively accessible, consider breaking up long sentences and paragraphs. Use simpler and more clear language.
- Consider using keyboard shortcuts instead of emphasizing the mouse
- Use JAWS to read through the site - for whatever reason Search Engines link is said on the Home Page. You can catch things like this.

Other Information

- Guide is an interesting software application that obscures the GUI of the operating system and makes things simple (incorporates Dragon speech technology): http://www.guide-evas.com/
- In general, there is a basic failure of access for information technology regarding users who have accessibility needs.
- TypeAbility - a program that takes over your entire computer and teaches you how to use JAWS and makes jokes about jellycopters (what jiggles when it flies?)
- Very passionate and informative

September 15, 2014 DCPL Adult Literacy Services Staff Member

Question 1: What new features that were added to the prototype did you find the most useful?

- The videos were good.
- This website would be very useful for our customers.
- The large font size was wonderful for adult learners.
- The Learning Checks were great and really did a good job testing learners on the skills that they learned in the module.

Question 2: What new features that were added to the prototype did you find the least useful?

- The Get Help section was useful, but in order to learn how to scroll down, you need to scroll down.
- How are you going to get adult learners to read through the content?

Question 3: These are the features that I will be adding in the next iteration. Will these features add more value to the prototype?

- To improve the videos, make the sound more consistent between the screencast and the in person. Incorporate the telestrations into the videos.
- Break out the sections into different pages to make the content more manageable and less daunting. For example, in the Get Help section, introduce how to use buttons first. For the home page, try to get the page to fit on one screen.
- Add information about how to find and reference this website again in the future.

Stage 2 Iterative Feature Tracking Spreadsheet

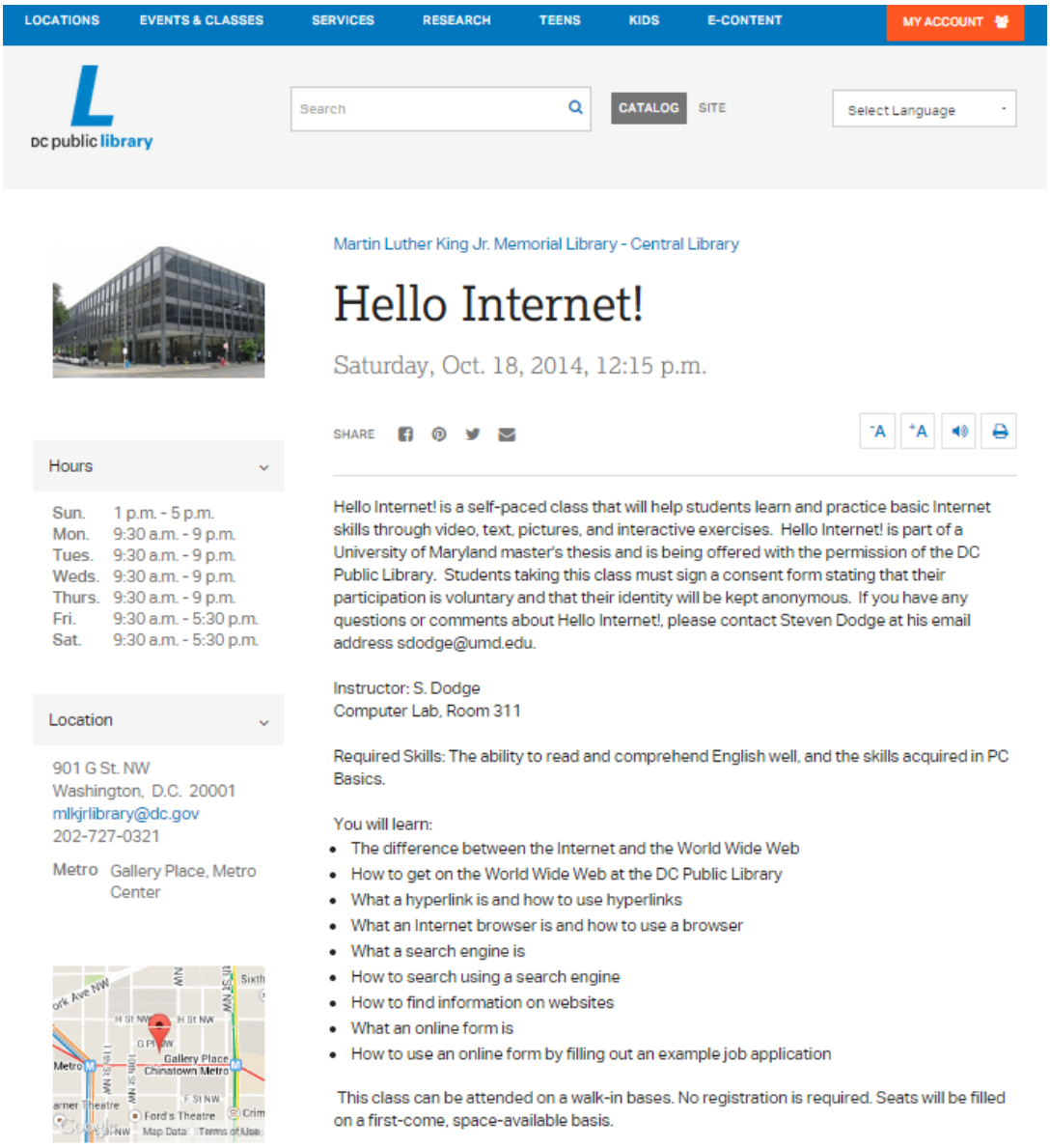
Feature ID	Title	Description	Source	Priority	Effort Required	Completed	Stage
1	Add Introduction Video for Each Lesson Module	Add an introduction video for each lesson in each module of Hello Internet! to supplement the text and images.	Steven Dodge	High	High	Yes	Stage 1
2	Add a Pre-Assessment Test	Add a pre-assessment test to tell users which skills they have, which skills they do not have, and which modules the learners should check out to strengthen their skills.	Interview	Medium	Medium	No	Stage 1
3	Create Mini Videos To Visually Show Lesson Skills	Create short videos that visually demonstrate how to complete the skills explained via text. This would be achieved through screen recording software. Videos should be no longer than 2 minutes in length.	Steven Dodge	High	High	Yes	Stage 1
4	Add a glossary of terms	Add a glossary of terms used in Hello World	Steven Dodge	Medium	Medium	No	Stage 1
5	Add Help link on Every Page	Add a hyperlink for users to click on every page taking them to the page explaining how lessons work.	Steven Dodge	High	Medium	Yes	Stage 1
6	Add Keyboard Shortcuts Where Relevant	Add the keyboard shortcuts to lesson modules where applicable.	Interview	High	Medium	Yes	Stage 1
7	Make Hello Internet! 508 Compliant	Make all Hello Internet! web pages accessible and 508 compliant	Interview	High	High	Partially Completed	Stage 1
8	Add Accessibility Information to Hello Internet	How to zoom and make the Internet a more accessible place.	Interview	High	Medium	No	Stage 1
9	Add Email Account Information	Add a lesson to explain what an email account is, how to sign up for one, and how to send an email message	Interview	High	Medium	Added a short bit to the Online Forms page	Stage 1
10	Terminology Videos	Introduce terminology at the beginning of each lesson or module with a video by touching it, naming it, and defining it	Interview	High	High	Yes	Stage 1
11	Add Tab key online form navigation to online form lesson	Moving between form fields by using the Tab key on the keyboard	Interview	High	Low	Yes	Stage 1
12	Add information about Internet Security	Protection from scams, HTTP vs HTTPS, Phishing, Cookies, and more	Interview	High	Medium	Added to What's a Browser?	Stage 1
13	Add information about fair use for using information found on	Citing sources when copying and pasting information from the web	Interview	High	Medium	Yes	Stage 1

	the Internet						
14	Add measurement of progress	The site should have an indication of the “measurement of progress.” The indication should be “qualitative and humane.”	Interview	Low	High	No	Stage 1
15	Add a page explaining how to get help when you need help	The site should have an indication of the “measurement of progress.” The indication should be “qualitative and humane.”	Interview	High	Medium	Yes - added Help Link to every page	Stage 1
16	Improve mouse and keyboarding skills by providing resource	Offer resources online to help students improve their mouse and keyboarding skills independently as a part of the Getting Started page	Interview	High	Low	Yes - added to Get Started page	Stage 1
17	Add Drag and Drop to Online Forms	Drag and drop is featured on the GED test	Interview	High	Low	Yes	Stage 1
18	Add Hotspot to Online Forms or Hyperlink section	Hotspots are used in the GED	Interview	Low	Low	No	Stage 1
19	Copying and pasting text and graphics from the Web to MS WORD	Adding a lesson describing how to complete this skill	Interview	High	Low	Yes	Stage 1
20	For the image labels, use Picture instead of Figure	For the image labels, use Picture instead of Figure	Interview	High	Medium	Yes	Stage 2
21	Add the Digital Commons in Learn More	Add the Digital Commons at the DCPL as a resource in the Learn More sections for each module	Interview	Low	Low	Yes	Stage 2
22	Sharing Videos	Add information about how to share videos	Interview	Medium	Low	No	Stage 2
23	Internal/External Hyperlink Diagram	Add a diagram showing the differences between internal and external hyperlinks	Interview	Low	Low	No	Stage 2
24	Bold Free Wifi	In the Web 101 module, bold free Wi-Fi to emphasize that the DCPL offers this service to patrons.	Interview	Medium	Low	Yes	Stage 2
25	Zoom in on Images and Video	Some of the text in the pictures and videos is a little small and hard to read. Can the size of the text increase?	Interview	Medium	High	Partially Completed	Stage 2
26	www.dclibrary.org should be acceptable URL	For the address bar practice, www.dclibrary.org should be an acceptable URL to use	Interview	Medium	Low	Yes	Stage 2
27	Differentiate between Google Chrome and Google	Sometimes, students are confused about the differences between the Google Search Engine and the Google Chrome Internet browser	Interview	Medium	Low	Yes	Stage 2

28	Define keywords	In the Search Engines module, define what a keyword is when searching for information on the Web.	Interview	Medium	Low	Yes	Stage 2
29	404 pages	Add information about possible error message like 404 errors and how to deal with these errors	Interview	Medium	Low	Yes	Stage 2
30	URL Domain Extensions	Review different domains and what they mean - edu, org, com, and gov	Interview	Medium	Low	Yes	Stage 2
31	Break Up Content Into Shorter Sentences	To make the content more cognitively accessible, consider breaking up long sentences and paragraphs. Use simpler and more clear language.	Interview	High	high	Yes	Stage 2
32	Consider mouse alternatives	Consider using keyboard shortcuts instead of emphasizing the mouse for users who cannot use a mouse	Interview	High	Medium	No	Stage 2
33	How to Find Hello Internet	Add information about how to find and reference this website again in the future	Interview	Medium	Low	No	Stage 2
34	Make Video Sound Consistent	To improve the videos, make the sound more consistent between the screencast and the live in person sections.	Interview	Medium	high	No	Stage 2
35	Scroll Down Confusion	The Get Help section was useful, but in order to learn how to scroll down, you need to scroll down. Can the content be restructured to avoid this issue?	Interview	High	Medium	Yes	Stage 2
36	Break Up Content Into Separate Web Pages	Break out the sections into different pages to make the content more management and less daunting.	Interview	High	High	No	Stage 2

Appendix D: Stage 3 Appendix

Stage 3 Advertisements



Retrieved From: http://dclibrary.org/node/44977

The following is the handout provided to students taking the *Hello Internet!* classes.

Hello Internet!

DCPL Computer Class Program
Martin Luther King, Jr. Memorial Library
Instructor: Steven Dodge

Course Agenda

- Introductions
- What is *Hello Internet!*?
- Consent Form
- Beginning Survey
- *Hello Internet!*
- Concluding Survey

About Me

- Steven Dodge
- Currently working at Engility as an IT consultant for the Department of Veterans Affairs
- Part time graduate student at the University of Maryland

What is *Hello Internet!*?

- *Hello Internet!* is part of a University of Maryland master's thesis and is being offered with the permission of the DC Public Library.

Consent Form

- Students taking this class must sign a consent form stating that their participation is voluntary and that their identity will be kept anonymous.

Statement of Consent	Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form. If you agree to participate, please sign your name below.	
Signature and Date	**NAME OF PARTICIPANT [Please Print]**	**Your Name**
	SIGNATURE OF PARTICIPANT	*Your Name*
	DATE	**10/9/2014**

What is *Hello Internet!*?

- *Hello Internet!* is a self-paced class that will help students learn and practice basic Internet skills through video, text, pictures, and interactive exercises.

Hello Internet! Objectives

- You will learn:
  - The difference between the Internet and the WWW
  - How to get on the World Wide Web at the DCPL
  - What a hyperlink is and how to use hyperlinks
  - What an Internet browser is and how to use a browser
  - What a search engine is
  - How to search using a search engine
  - How to find information on websites
  - What an online form is
  - How to use an online form by filling out an example job application

What do you need to know before today?

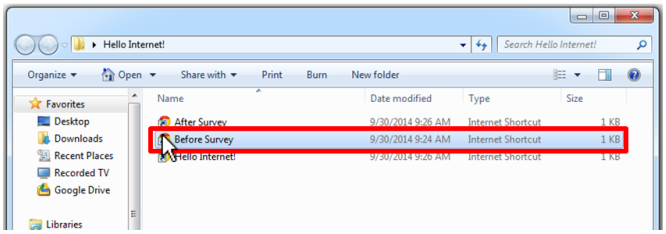
- PC Basics
- For more information, please visit: http://www.dclibrary.org/services/computer

Before Survey - Step 1

- 1) Open the **Hello Internet!** folder on your Desktop. Hover your mouse over the folder. Then, either left click twice or left click once and press the Enter key.

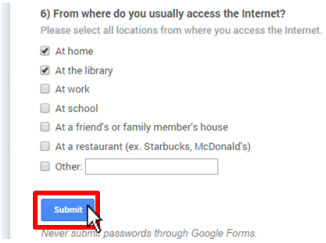
Before Survey - Step 2

- 2) Hover your mouse over **"Before Survey."** Then, either left click twice or left click once and press the Enter key.



Before Survey - Step 3

- 3) Please answer all 6 questions to the best of your ability. Then, press the **Submit** button when you are done.

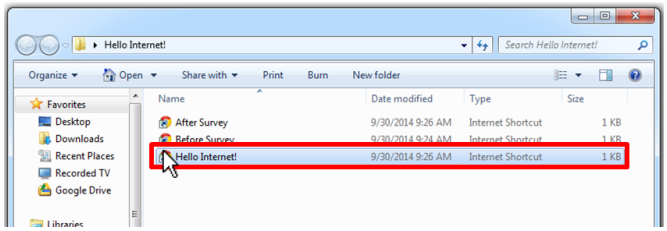


Hello Internet! - Step 1

- 1) Open the **Hello Internet!** folder on your Desktop. Hover your mouse over the folder. Then, either left click twice or left click once and press the Enter key.

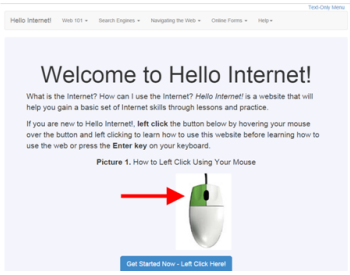
Hello Internet! - Step 2

- 2) Hover your mouse over **"Hello Internet!"** Then, either left click twice or left click once and press the Enter key.



Hello Internet! - Step 3

- 3) Follow the site's directions to start learning about the Internet and the World Wide Web.

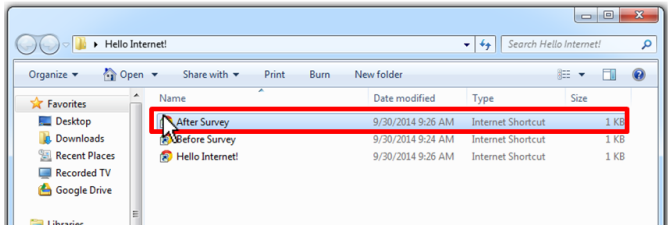


After Survey - Step 1

- 1) Open the **Hello Internet!** folder on your Desktop. Hover your mouse over the folder. Then, either left click twice or left click once and press the Enter key.

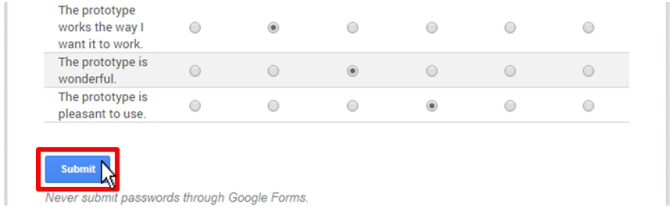
After Survey - Step 2

- 2) Hover your mouse over **"After Survey."** Then, either left click twice or left click once and press the Enter key.



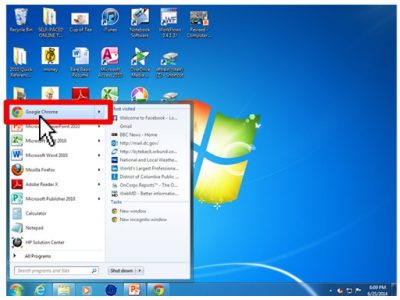
After Survey - Step 3

- 3) Please answer all questions to the best of your ability. Then, press the **Submit** button when you are done.



Keep Learning with *Hello Internet!*

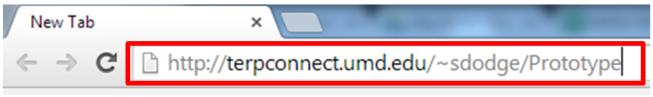
- 1) Open an Internet browser.



Keep Learning with *Hello Internet!*

- 2) Click into the address bar and type in the following URL:
  http://terpconnect.umd.edu/~sdodge/Prototype

Then, press the Enter key.



Thank You For Your Participation!

Questions? Comments? Concerns?

Feel free to contact me at sdodge@umd.edu or visit me at any of the following Hello Internet! classes this month:

- **October 9:** 12:30pm – 2:30pm
- **October 15:** 6:30pm – 8:30pm
- **October 18:**12:15pm – 2:15pm

Stage 3 Before Survey Questions

INFM 799 Stage 3 Survey Before User Testing

The purpose of this survey is to collect your thoughts and opinions about learning basic Internet skills at the DC Public Library. This survey is a part of a research study being conducted at the University of Maryland's College of Information Studies.

Your responses to all questions are anonymous. If at any time you feel uncomfortable, you can quit the survey at any time. Your thoughts and opinions are very important to us to understand and suggest improvements for how basic Internet skills are taught at the DC Public Library.

Thank you for your participation!
Steven Dodge
sdodge@umd.edu

1) How often do you visit the DC Public Library?

Please the select the appropriate response below.

- First time visiting the DC Public Library
- A couple times during the year
- At least once every month
- At least every week
- At least once every day

2) How often do you attend computer classes at the library?

Please select the appropriate response below

- First time attending a computer class
- A couple times during the year
- At least once every month
- At least once every week
- At least once every day

3) Which DC Public Library computer classes have you taken so far?

Please select all classes that you have attended.

- Access
- Basic Programming Code
- Email Basics
- Excel I
- Excel II

- Excel III Advanced
- HTML 5
- Internet Job Seeking 101
- JavaScript
- Mavis Beacon
- PC Basics
- PowerPoint
- Web I Basics
- Web II Intermediate
- Word I
- Word II

4) How often do you use the Internet?

Please select the appropriate response below.

- First time using the Internet today
- A couple of times during the year
- At least once a month
- At least once a week
- At least once a day

5) When you are using the Internet, what device do you use to access the Internet?

Please select all devices from which you access the Internet.

- Desktop
- Laptop
- Smartphone (ex. iPhone, Galaxy S4)
- Tablet (ex. iPad, Kindle, Surface)

6) From where do you usually access the Internet?

Please select all locations from where you access the Internet.

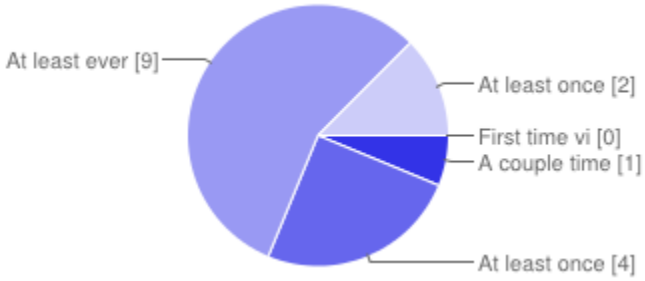
- At home
- At the library
- At work
- At school
- At a friend's or family member's house

- ☐ At a restaurant (ex. Starbucks, McDonald's)
- ☐ Other: [ ]

Submit

Stage 3 Before Survey Data

1) How often do you visit the DC Public Library?



First time visiting the library 0 0%

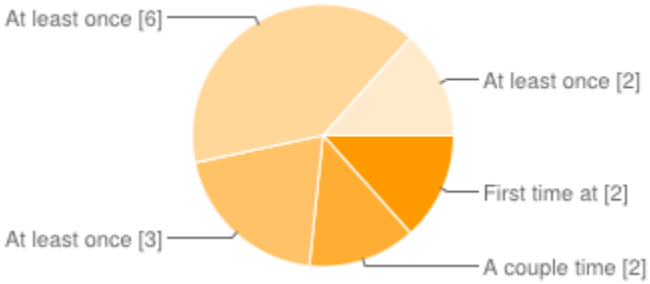
A couple times during the year 1 6%

At least once every month 4 25%

At least every week 9 56%

At least once every day 2 13%

2) How often have you attended computer classes at the library?



First time attending a computer class 2 13%

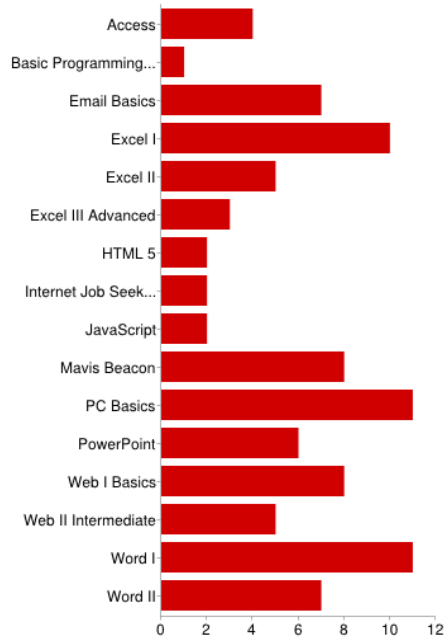
A couple times during the year 2 13%

At least once every month 3 19%

At least once every week 6 38%

At least once every day 2 13%

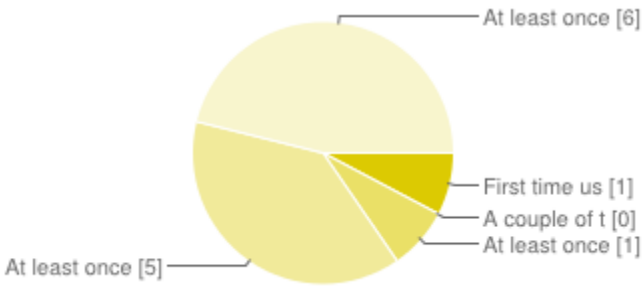
3) Which DC Public Library computer classes have you taken so far?



Access	4	25%
Basic Programming Code	1	6%
Email Basics	7	44%
Excel I	10	63%
Excel II	5	31%
Excel III Advanced	3	19%
HTML 5	2	13%
Internet Job Seeking 101	2	13%
JavaScript	2	13%
Mavis Beacon	8	50%
PC Basics	11	69%
PowerPoint	6	38%

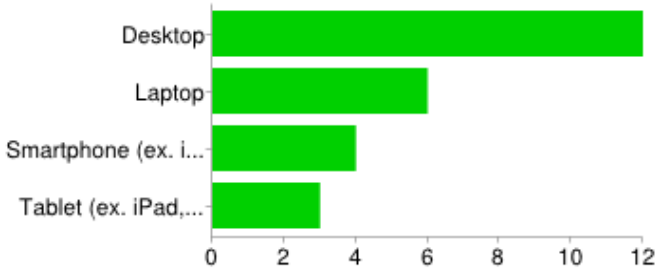
Web I Basics	8	50%
Web II Intermediate	5	31%
Word I	11	69%
Word II	7	44%

4) How often do you use the Internet?



First time using the Internet today	1	6%
A couple of times during the year	0	0%
At least once a month	1	6%
At least once a week	5	31%
At least once a day	6	38%

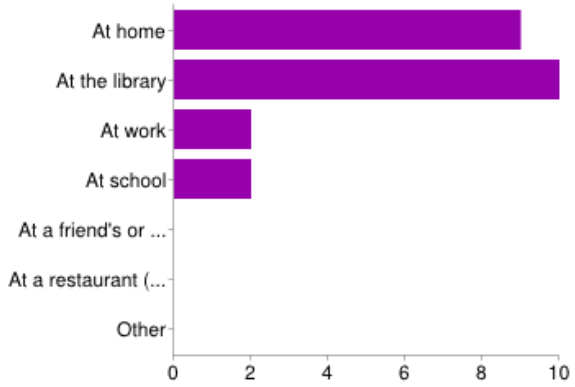
5) When you are using the Internet, what device are you using the Internet?



Desktop	12	75%
Laptop	6	38%
Smartphone (ex. iPhone, Galaxy S4)	4	25%

Tablet (ex. iPad, Kindle, Surface) 3 19%

6) From where do you usually access the Internet?



At home	9	56%
At the library	10	63%
At work	2	13%
At school	2	13%
At a friend's or family member's house	0	0%
At a restaurant (ex. Starbucks, McDonald's)	0	0%
Other	0	0%

Stage 3 After Survey Questions

INFM 799 Stage 3 Post Survey

The purpose of this survey is to collect your thoughts and opinions about using the online starting point prototype. This survey is a part of a research study being conducted at the University of Maryland's College of Information Studies.

Your responses to all questions are anonymous. If at any time you feel uncomfortable, you can quit the survey at any time. Your thoughts and opinions are very important to us to understand and suggest improvements for how basic Internet skills are taught at the DC Public Library.

Thank you for your participation!
Steven Dodge
sdodge@umd.edu

Please state your level of agreement with the following statements related to how useful the online starting point prototype is for learning basic Internet skills.

Please select the appropriate responses below.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
It is useful.	○	○	○	○	○	○
It makes the things I want to accomplish easier to get done.	○	○	○	○	○	○
It meets my needs.	○	○	○	○	○	○
It does everything I would expect it to do.	○	○	○	○	○	○

Please state your level of agreement with the following statements related to how easy it was to use the online starting point prototype for learning basic Internet skills.

Please select the appropriate responses below.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
The prototype is easy to use.	○	○	○	○	○	○
The prototype is simple to use.	○	○	○	○	○	○

The prototype is user friendly.						
Using the prototype is effortless.						
I can recover from mistakes quickly and easily.						
I can use the prototype successfully every time.						

Please state your level of agreement with the following statements related to how easy it was to learn how to use the online starting point prototype for learning basic Internet skills.

Please select the appropriate responses below.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
I learned to use the prototype quickly.						
I easily remember how to use the prototype.						
It is easy to learn to use the prototype.						
I quickly became skillful with the prototype.						

Please state your level of agreement with the following statements related to your satisfaction with the online starting point prototype for learning basic Internet skills.

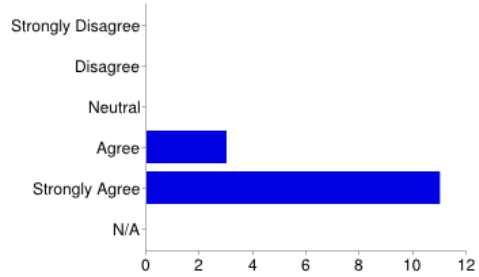
Please select the appropriate responses below.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
I am satisfied with the prototype.						
I would recommend the prototype to a friend.						
The prototype is fun to use.						
The prototype works the way I want it to work.						

The prototype is wonderful.						
The prototype is pleasant to use.						

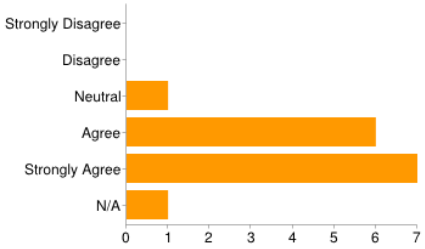
Stage 3 After Survey Data

It is useful. [Please state your level of agreement with the following statements related to how useful the online starting point prototype.]



Strongly Disagree	0	0%
Disagree	0	0%
Neutral	0	0%
Agree	3	20%
Strongly Agree	11	73%
N/A	0	0%

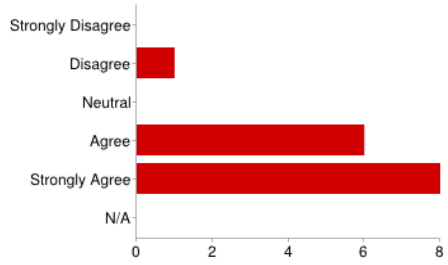
It makes the things I want to accomplish easier to get done. [Please state your level of agreement with the following statements related to how useful the online starting point prototype.]



Strongly Disagree	0	0%
Disagree	0	0%
Neutral	1	7%
Agree	6	40%
Strongly Agree	7	47%

N/A 1 7%

It meets my needs. [Please state your level of agreement with the following statements related to how useful the online starting point prototype.]



Strongly Disagree 0 0%

Disagree 1 7%

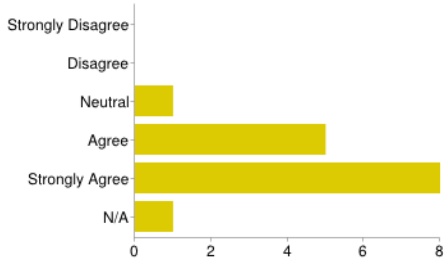
Neutral 0 0%

Agree 6 40%

Strongly Agree 8 53%

N/A 0 0%

It does everything I would expect it to do. [Please state your level of agreement with the following statements related to how useful the online starting point prototype.]



Strongly Disagree 0 0%

Disagree 0 0%

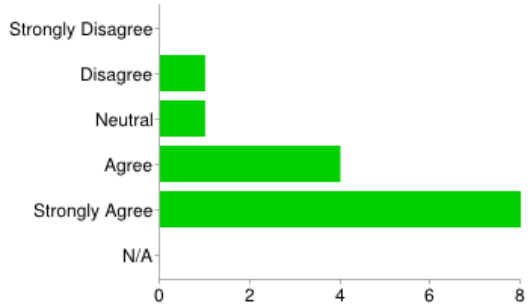
Neutral 1 7%

Agree 5 33%

Strongly Agree 8 53%

N/A 1 7%

The prototype is easy to use. [Please state your level of agreement with the following statements related to how easy it was to use the online starting point prototype.]



Strongly Disagree 0 0%

Disagree 1 7%

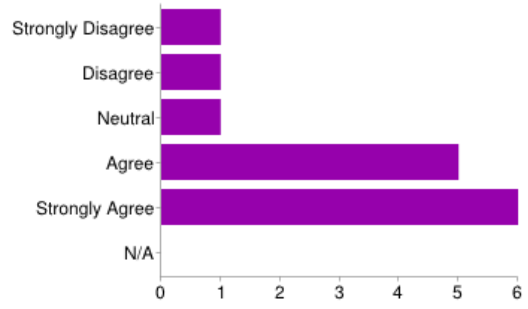
Neutral 1 7%

Agree 4 27%

Strongly Agree 8 53%

N/A 0 0%

The prototype is simple to use. [Please state your level of agreement with the following statements related to how easy it was to use the online starting point prototype.]



Strongly Disagree 1 7%

Disagree 1 7%

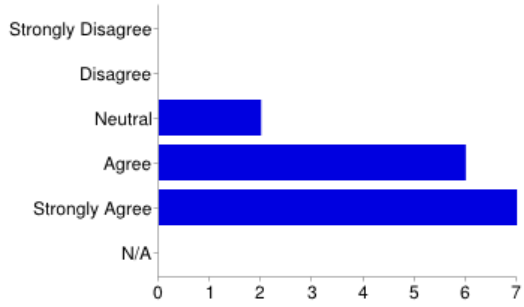
Neutral 1 7%

Agree 5 33%

Strongly Agree 6 40%

N/A 0 0%

The prototype is user friendly. [Please state your level of agreement with the following statements related to how easy it was to use the online starting point prototype.]



Strongly Disagree 0 0%

Disagree 0 0%

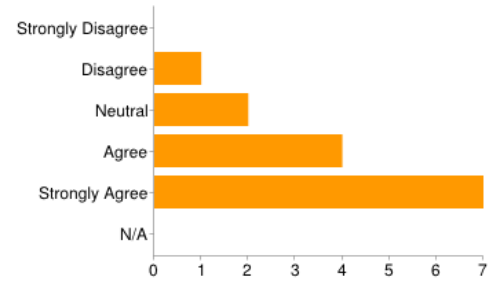
Neutral 2 13%

Agree 6 40%

Strongly Agree 7 47%

N/A 0 0%

Using the prototype is effortless. [Please state your level of agreement with the following statements related to how easy it was to use the online starting point prototype.]



Strongly Disagree 0 0%

Disagree 1 7%

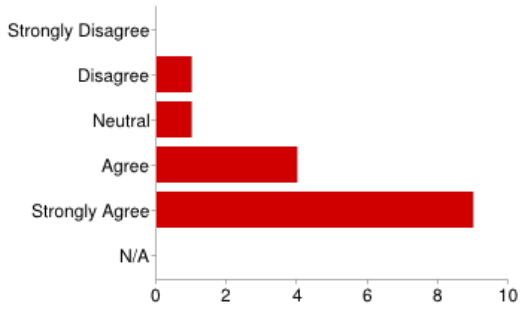
Neutral 2 13%

Agree 4 27%

Strongly Agree 7 47%

N/A 0 0%

I can recover from mistakes quickly and easily. [Please state your level of agreement with the following statements related to how easy it was to use the online starting point prototype.]



Strongly Disagree 0 0%

Disagree 1 7%

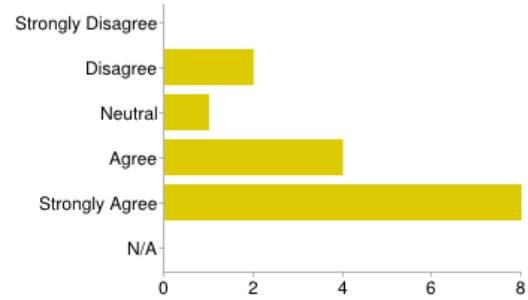
Neutral 1 7%

Agree 4 27%

Strongly Agree 9 60%

N/A 0 0%

I can use the prototype successfully every time. [Please state your level of agreement with the following statements related to how easy it was to use the online starting point prototype.]

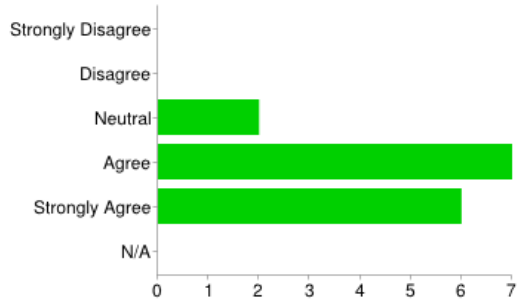


Strongly Disagree 0 0%

Disagree 2 13%

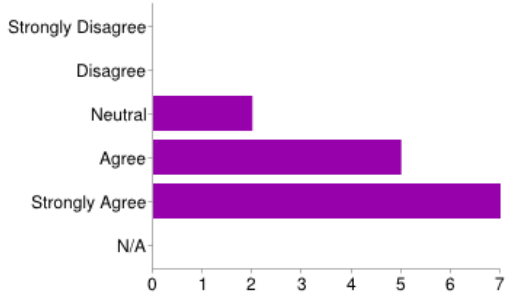
Neutral	1 7%
Agree	4 27%
Strongly Agree	8 53%
N/A	0 0%

I learned to use the prototype quickly. [Please state your level of agreement with the following statements related to how easy it was to learn how to use the online starting point prototype.]



Strongly Disagree	0 0%
Disagree	0 0%
Neutral	2 13%
Agree	7 47%
Strongly Agree	6 40%
N/A	0 0%

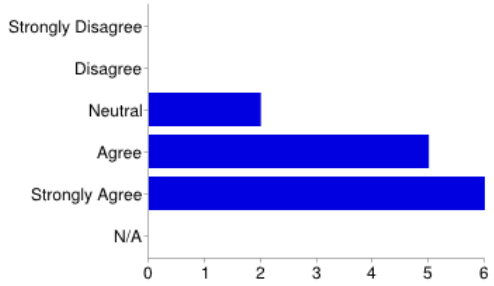
I easily remember how to use the prototype. [Please state your level of agreement with the following statements related to how easy it was to learn how to use the online starting point prototype.]



Strongly Disagree	0 0%

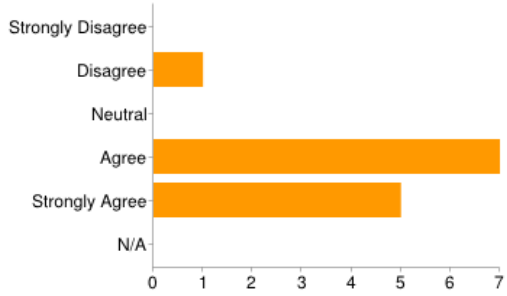
Disagree	0 0%
Neutral	2 13%
Agree	5 33%
Strongly Agree	7 47%
N/A	0 0%

It is easy to learn to use the prototype. [Please state your level of agreement with the following statements related to how easy it was to learn how to use the online starting point prototype.]



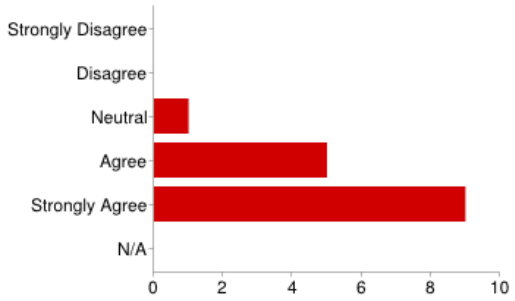
Strongly Disagree	0 0%
Disagree	0 0%
Neutral	2 13%
Agree	5 33%
Strongly Agree	6 40%
N/A	0 0%

I quickly became skillful with the prototype. [Please state your level of agreement with the following statements related to how easy it was to learn how to use the online starting point prototype.]



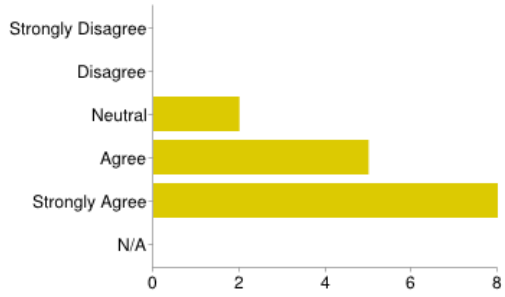
Strongly Disagree	0	0%
Disagree	1	7%
Neutral	0	0%
Agree	7	47%
Strongly Agree	5	33%
N/A	0	0%

I am satisfied with the prototype. [Please state your level of agreement with the following statements related to your satisfaction with the online starting point prototype.]



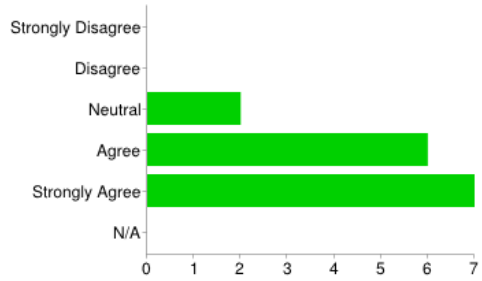
Strongly Disagree	0	0%
Disagree	0	0%
Neutral	1	7%
Agree	5	33%
Strongly Agree	9	60%
N/A	0	0%

I would recommend the prototype to a friend. [Please state your level of agreement with the following statements related to your satisfaction with the online starting point prototype.]



Strongly Disagree	0	0%
Disagree	0	0%
Neutral	2	13%
Agree	5	33%
Strongly Agree	8	53%
N/A	0	0%

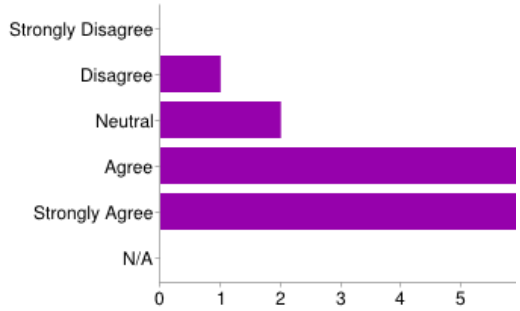
The prototype is fun to use. [Please state your level of agreement with the following statements related to your satisfaction with the online starting point prototype.]



Strongly Disagree	0	0%
Disagree	0	0%
Neutral	2	13%
Agree	6	40%
Strongly Agree	7	47%

N/A 0 0%

The prototype works the way I want it to work. [Please state your level of agreement with the following statements related to your satisfaction with the online starting point prototype.]



Strongly Disagree 0 0%

Disagree 1 7%

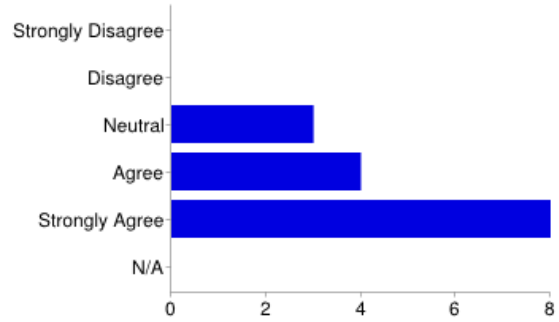
Neutral 2 13%

Agree 6 40%

Strongly Agree 6 40%

N/A 0 0%

The prototype is wonderful. [Please state your level of agreement with the following statements related to your satisfaction with the online starting point prototype.]



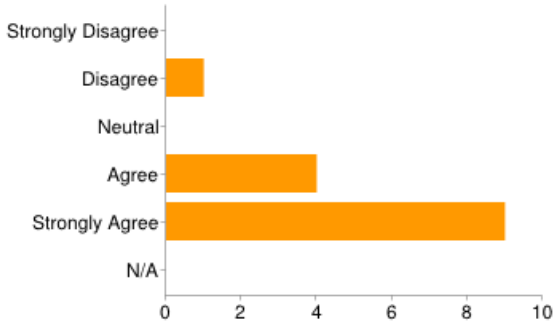
Strongly Disagree 0 0%

Disagree 0 0%

Neutral 3 20%

Agree	4 27%
Strongly Agree	8 53%
N/A	0 0%

The prototype is pleasant to use. [Please state your level of agreement with the following statements related to your satisfaction with the online starting point prototype.]

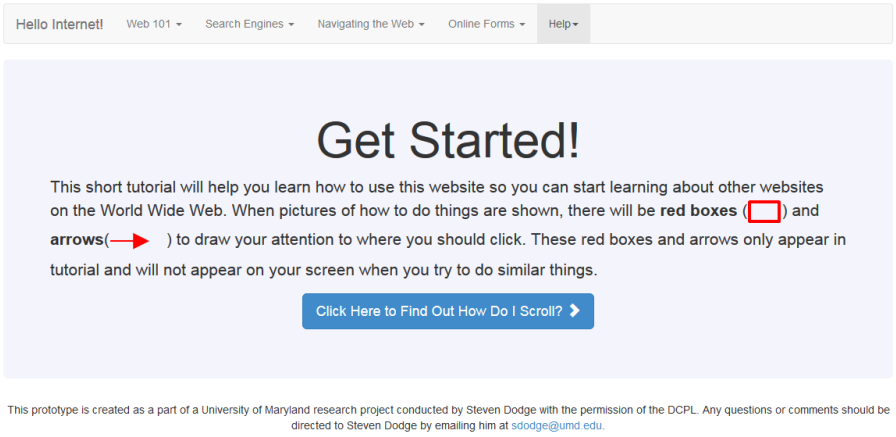


Strongly Disagree	0 0%
Disagree	1 7%
Neutral	0 0%
Agree	4 27%
Strongly Agree	9 60%
N/A	0 0%

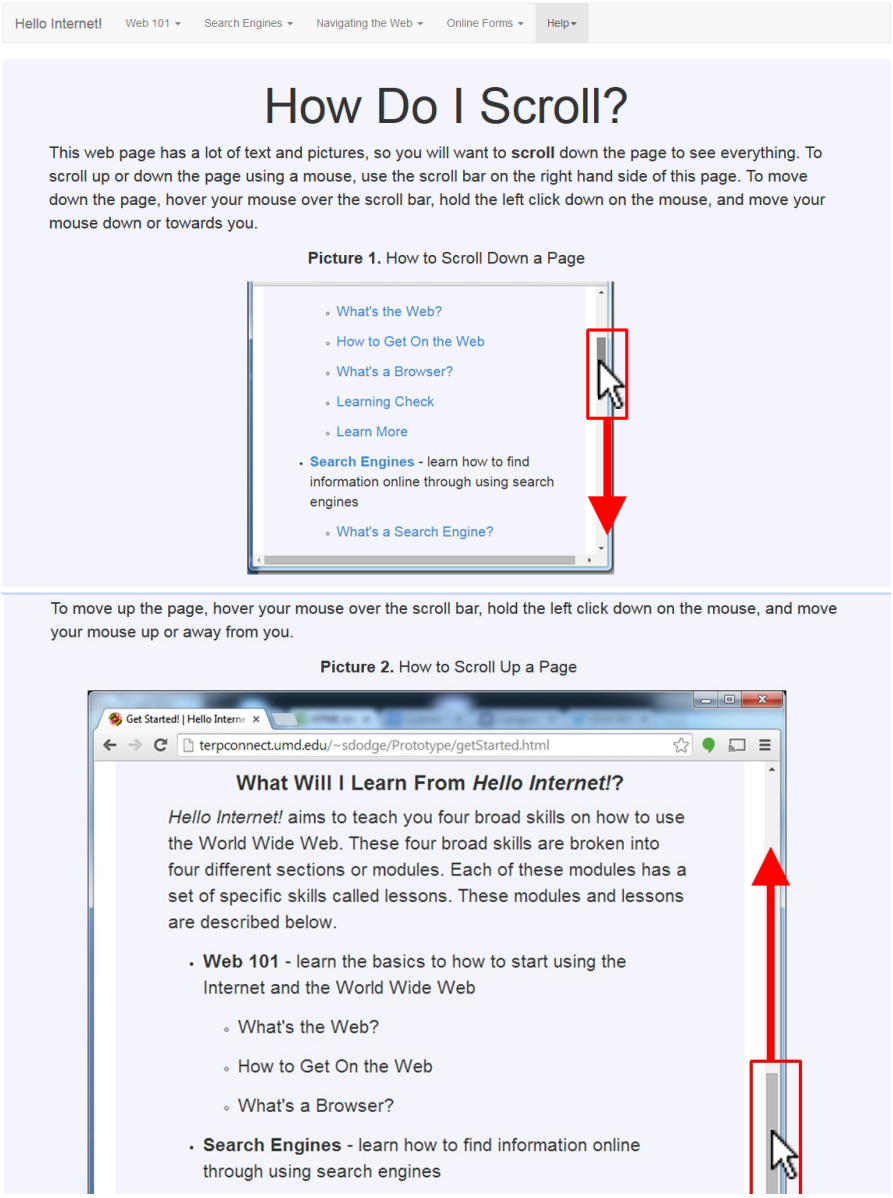
Appendix E: Hello Internet Prototype

Get Started! Screenshots

Get Started!



How Do I Scroll?



How Does Try It Out! Work?

To practice what you learn, there are often sections on the page labeled **Try It Out!**. These sections often appear in yellow rectangles just like the yellow rectangle below. Throughout *Hello Internet!*, these sections will give you feedback when you have completed the task.

Try It Out!

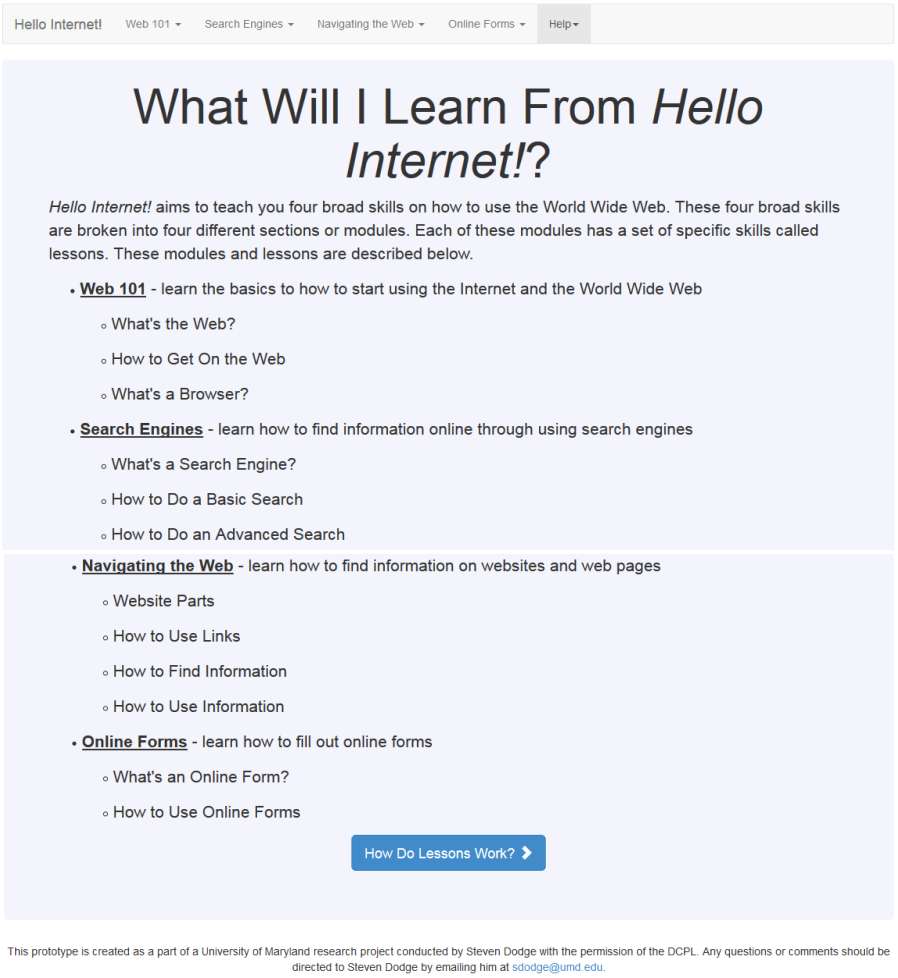
The Declaration of Independence is written below, but because the Declaration of Independence is so long, it does not all fit in the box. Use the scroll bar on the right hand side of the box to scroll down to the bottom of the page.

Roger Sherman
Samuel Huntington
William Williams
Oliver Wolcott
New Hampshire:
Matthew Thornton

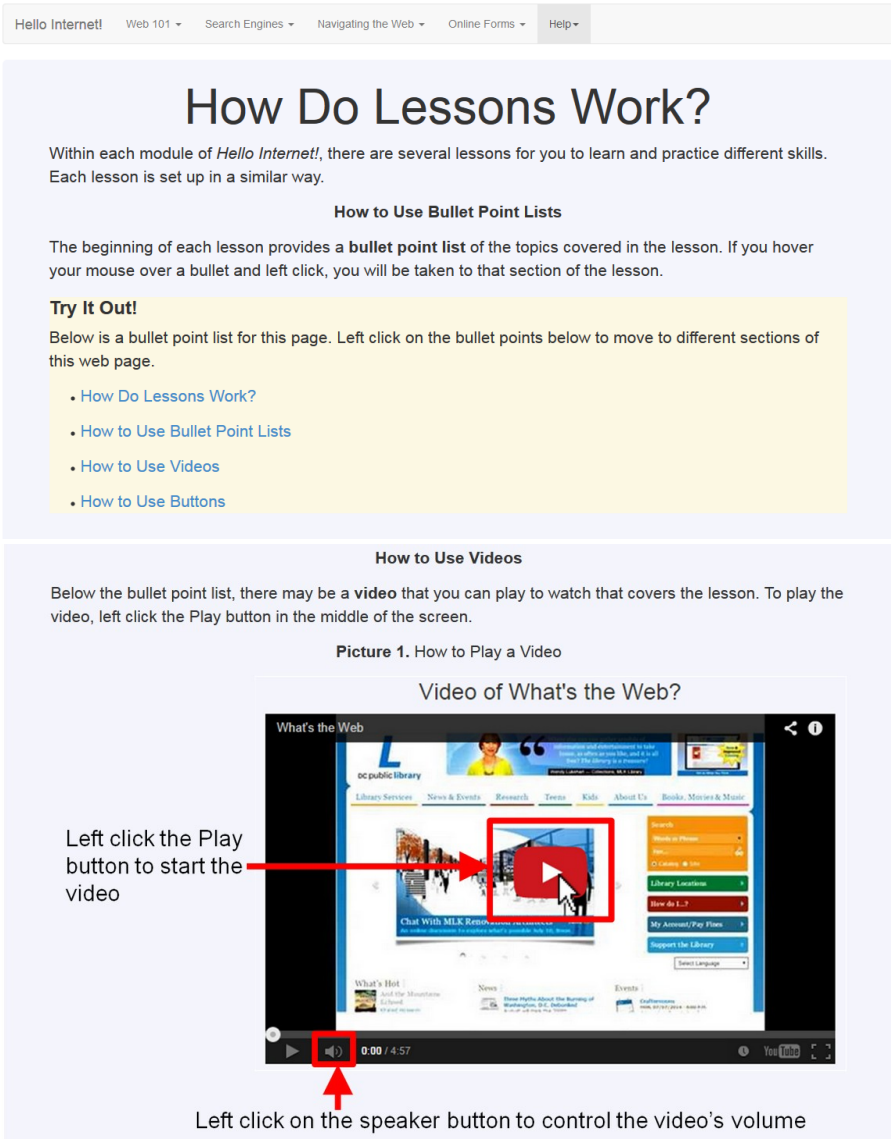
Correct! You have successfully scrolled all the way down the Declaration of Independence!

What Will I Learn? ❯

What Will I Learn From Hello Internet!?



How Do Lessons Work?



Try It Out!

Try playing a video from the DC Public Library below by left clicking the triangle button in the middle of the video.

How to Use Buttons

At the bottom of every page, there will also be a set of **buttons** that help you move between different lessons in *Hello Internet!*. These buttons are blue with white text as shown below. To view the next lesson, left click the button labeled with a forward arrow (❯). To go backwards to a previous lesson, left click the button with a backward arrow (❮).

Try It Out!

Click the buttons below to practice moving to the previous and the next lesson by hovering your mouse over the button and left clicking one time.

❮ Go Back to Previous Lesson | Continue to Next Lesson ❯

If you want to practice your mouse or keyboard skills before continuing, please visit the following websites:

- Mouse Practice
- Keyboard Practice

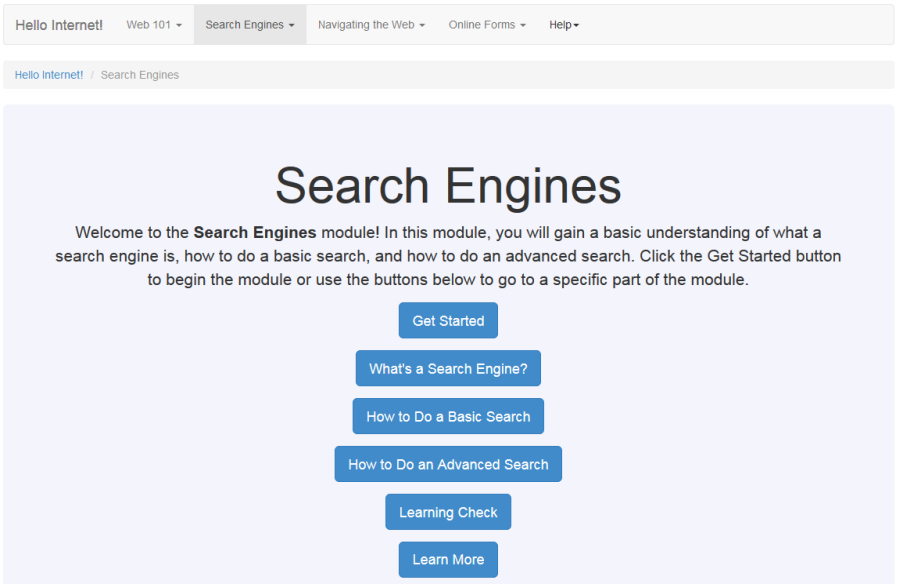
Now, you are ready to begin! To get started learning what the World Wide Web is, please left click the Start Learning button below.

Start Learning! ❯

This prototype is created as a part of a University of Maryland research project conducted by Steven Dodge with the permission of the DCPL. Any questions or comments should be directed to Steven Dodge by emailing him at sdodge@umd.edu.

Search Engines Screenshots

Search Engines Home Page



What's a Search Engine?

Hello Internet! Web 101 Search Engines Navigating the Web Online Forms Help

Hello Internet! / Search Engines / What's a Search Engine?

What's a Search Engine?

In this section, you will learn:

- What is a Search Engine?
- Example Search - District of Columbia

Please watch the video and read the information below to start learning.

Video of What's a Search Engine

What is a Search Engine?

The World Wide Web is a really big place. In the last module, we learned how to use an Internet browser. An Internet browser allows us to view websites but only if we know the website's web address or URL.

For example, if we wanted to visit the DC Public Library's website and did not know that the website's URL is http://dclibrary.org, we would be stuck. When we do not know where to find information online, **search engines** are powerful tools to help us find websites on the World Wide Web.

A search engine is a website that helps you find other websites on the World Wide Web. In addition to websites, search engines can also help you find pictures, videos, map and direction information, and more. Three of the most popular search engines in the United States are:

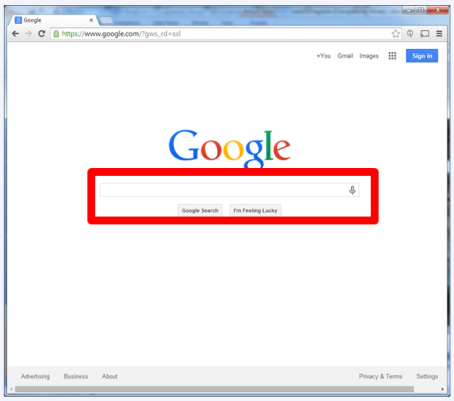
- Google
- Bing
- Yahoo

All three of these search engines work by asking you to put what you are searching for into a text box. A text box is a way for you to enter a line of text using your keyboard.

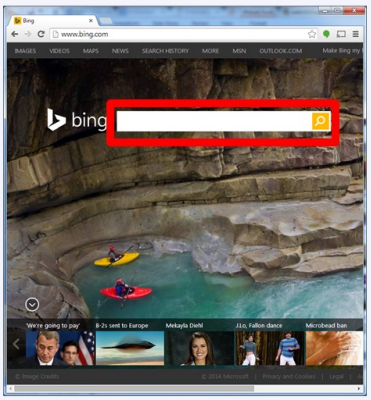
Example Search - District of Columbia

Let's say you wanted to find out more information about the District of Columbia. You could start by visiting a search engine first. The home pages or beginning pages of the three most popular search engines are shown below. Through using a text box called a **search box**, you can enter whatever text you are interested in learning more about. Then, the search engine will find websites that match your text.

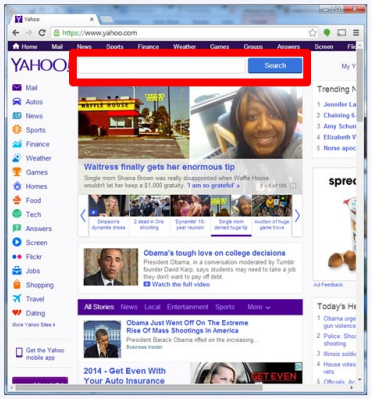
Picture 1. Google's Search Box



Picture 2. Bing's Search Box



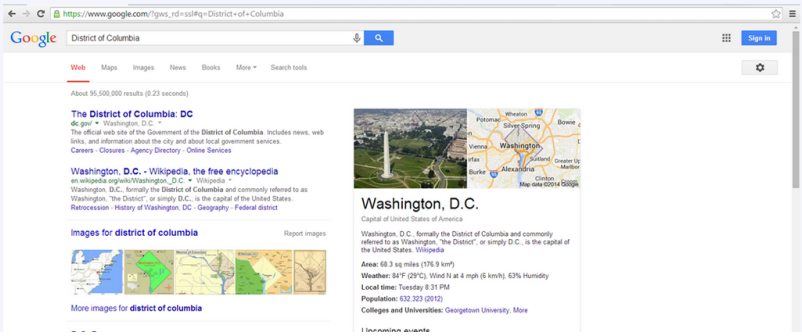
Picture 3. Yahoo's Search Box



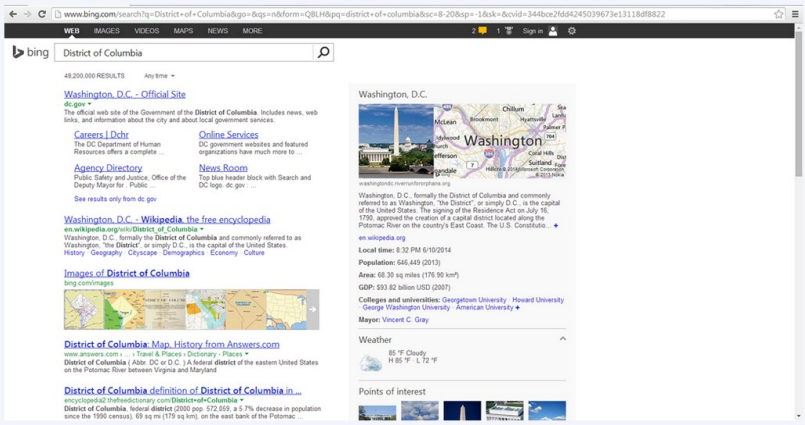
After you enter what you want to find into the search box, the search engine goes to work. Search engines work by taking advantage of the structure of the World Wide Web. In Web 101, we learned that the websites and web pages of the World Wide Web are connected together by hyperlinks. Search engines take advantage of these hyperlinks or connections to crawl across the web and reach the billions of websites.

For each page, a search engine stores information related to what the page is about. Using the information that you entered into the search box, the search engine will search through its stored information to find websites that you might be looking for. Then, the search engine will show you a list of websites or search results that match what you entered into the search box. The search results for the District of Columbia using Google, Bing, and Yahoo are shown below.

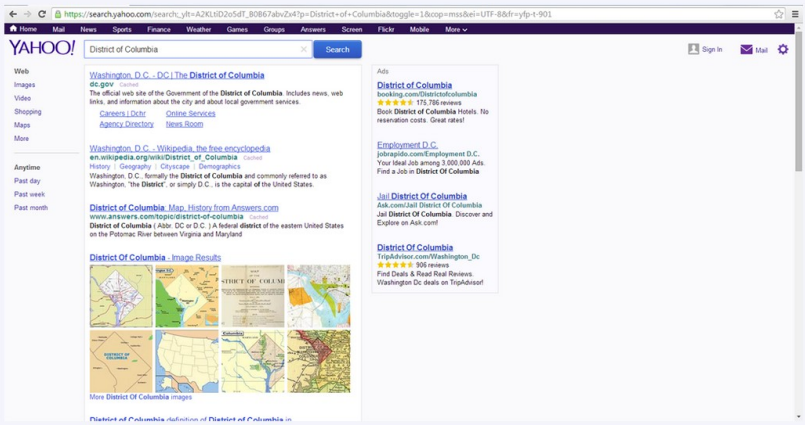
Picture 4. Google's Search Results



Picture 5. Bing's Search Results



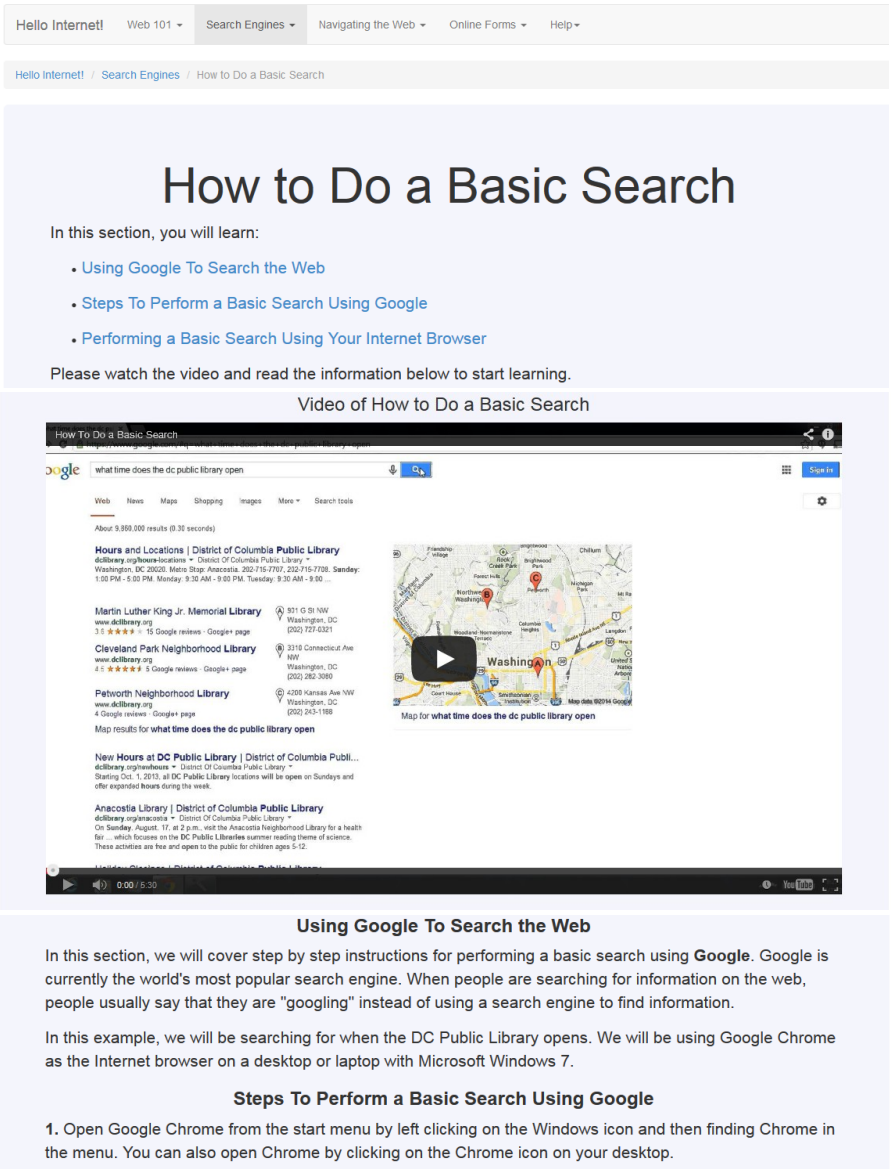
Picture 6. Yahoo's Search Results



The next section will cover how to perform a basic search using Google's search engine. Use the buttons below to go to the next section.

Go Back to Search Engines | Continue to How to Do a Basic Search

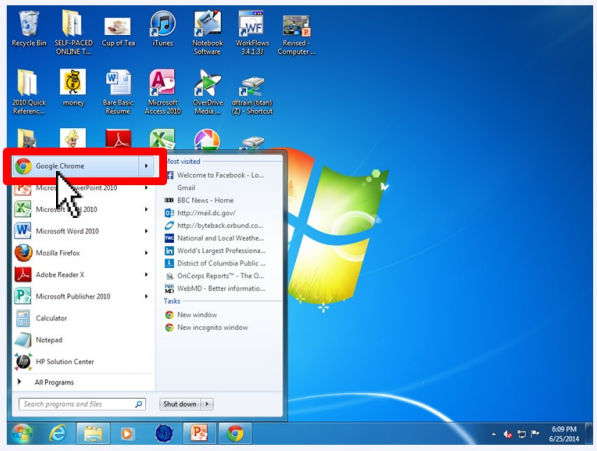
How to Do a Basic Search



Steps To Perform a Basic Search Using Google

1. Open Google Chrome from the start menu by left clicking on the Windows icon and then finding Chrome in the menu. You can also open Chrome by clicking on the Chrome icon on your desktop.

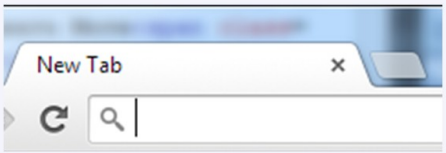
Picture 1a. Opening Google Chrome from the Start Menu



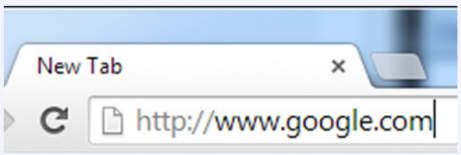
Picture 1b. Opening Google Chrome from the Desktop

2. Left click into the address bar. Then, type in **http://www.google.com**, and hit the Enter key on your keyboard.

Picture 2a. Left click into the address bar



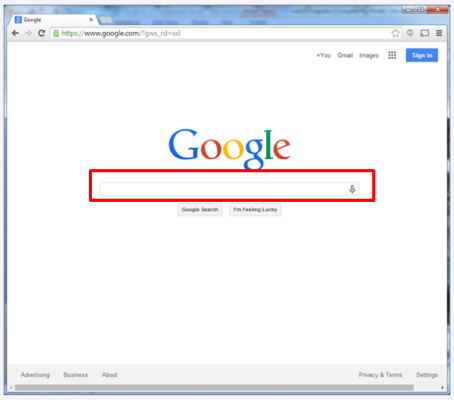
Picture 2b. Type in http://www.google.com



Picture 2c. Press the Enter key on your keyboard

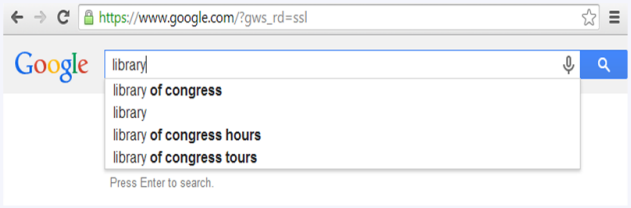
3. The Google home page is now loaded. To search for the DC Public Library's hours, let's left click into the **Google search box**. The Google search box is outlined in a red box in the image below.

Picture 3. Left click into the Google Search Box



4. Let's try typing in "library hours" into the search box. "library hours" are our search terms or **keywords**. Then, hit the Enter key on your keyboard.

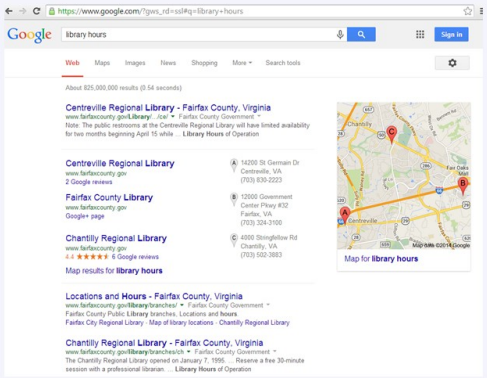
Picture 4a. Type in "library hours" into the Google Search Box



Picture 4b. Press the Enter key on your keyboard

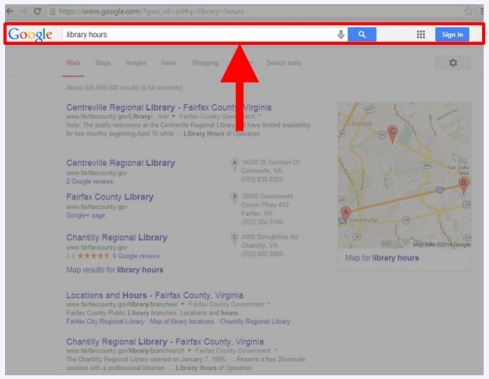
5. The search results page now appears for "library hours." **Search results** are a list of the websites that matched what you typed into the search box.

Picture 5a. The Search Results page now appears for library hours



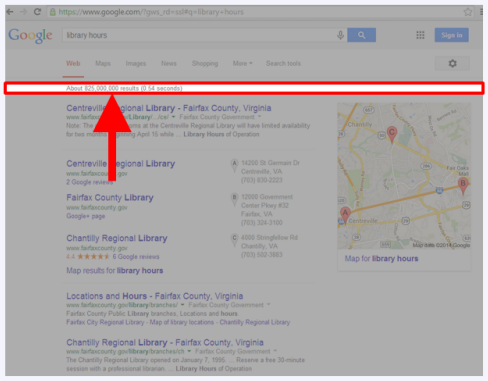
Google's search results are organized into several parts. At the top of your screen, you will see what your original search was for. If we need to modify our search or search for something else, we can use this search box.

Picture 5b. Google Search Box Appears at the Top of the Search



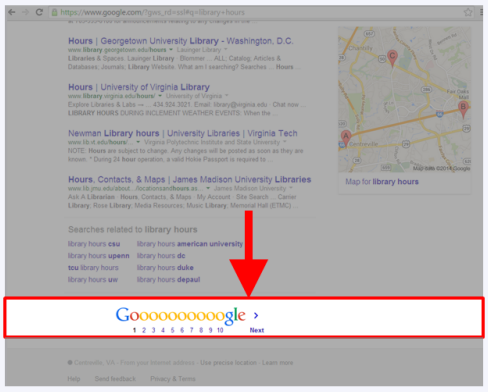
Google's search results are organized into multiple pages. For our search, we were able to retrieve over 825,000,000 results or web pages as shown in the picture below.

Picture 5c. Google Search Results: Number of Results appear at the Top of the Page



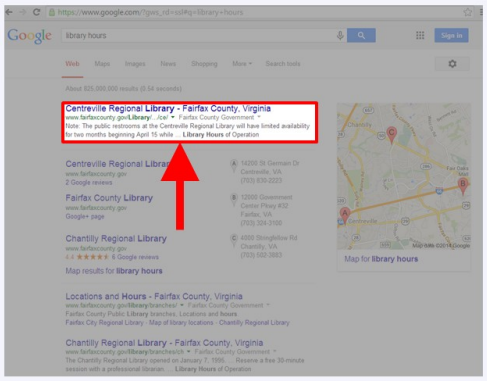
To move between the pages of results, left click the page hyperlinks, which are represented by one or more of the letter "o" near the bottom of the page as shown in the picture below.

Picture 5d. Google Search Results: The Page Hyperlinks Appear at the Bottom of the Page



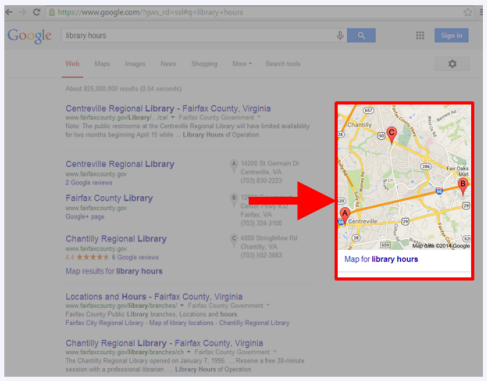
The majority of the page contains the search results. Sometimes, advertisements appear in the search results, but no advertisements appear for "library hours." The search results for this search are divided into two sections. On the left hand side of the page, there is a listing of the websites that match our search for library hours. The listing of websites show the best results first, and each result follows a similar format.

Picture 5e. Google Search Results: Individual Search Result



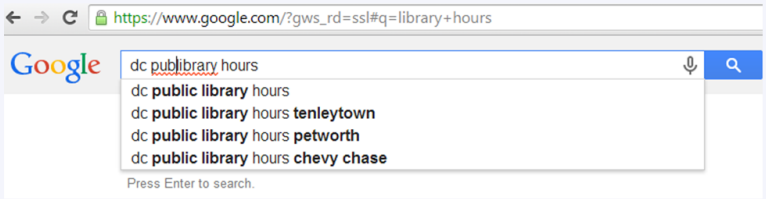
On the right hand side of the page, there is a map showing libraries in the area. Other than the billions of web pages Google collects information about, Google also uses other information such as location to make the search results more meaningful. In this case, this Google search was done on a desktop computer located in Fairfax County, Virginia, which is why Fairfax County Libraries appear at the top of the search results.

Picture 5f. Google Search Results: Maps Results



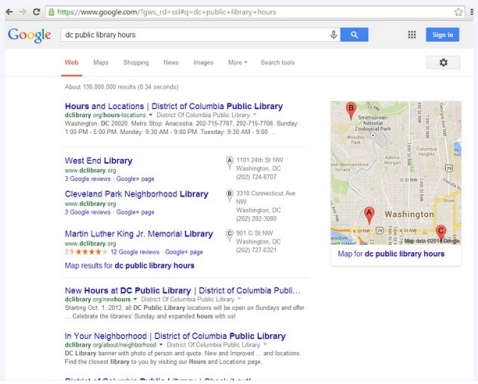
6. To find out what the DC Public Library's hours are, we will need to add more information to our search. The more information you can provide a search engine, the better your chances are at getting the search results you want. Left click into the search box, and type in "dc public library hours" instead of "library hours." Then, press the Enter key on your keyboard.

Picture 6. Edit the Google Search Results to Search for "dc public library hours" and press the Enter key on your keyboard



7. The Google Search Results are now updated. Instead of seeing the Fairfax County Library at the top of the results, the DC Public Library appears at the top of the page and in the map results. In fact, the first result is a web page with the hours of the DC Public Library branches. This result is what we are looking for.

Picture 7. Google Search Results: Searching for "dc public library" provided better results



Try It Out!

Now that you have learned the basic steps for searching for information using Google, let's try it out! There is a Google Search Box below that searches all of the webpages belonging to the DC Public Library's website. Using the Google Search Box below, find answers to these following questions asking you to find the web address or URL of certain DC Public Library websites.

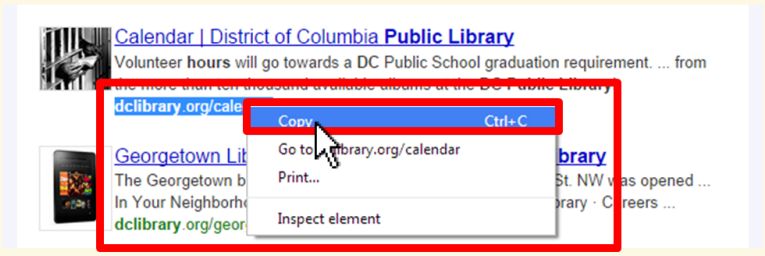
Remember that the URL appears in **green text** in the Google search results. Copy and paste the green text of the page that you think answers the question in the Answer text box, and left click the Check Answer button to see if you are correct.

To copy, highlight the text on the screen by:

1. Left click in front of the text you want to copy
2. Hold down the left click
3. Drag your mouse to the end of the text you want to copy

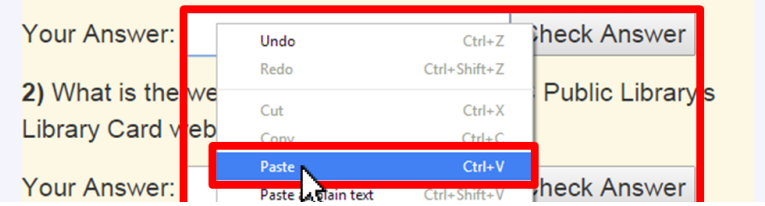
Then, right click on the highlighted text, and select Copy from the menu that appears.

Picture 8. Highlight the green URL and select Copy



To paste, right click on the screen where you want to paste the text, and select Paste from the menu that appears.

Picture 9. Right click and select Paste



Questions:

1) What is the web address or URL of the DC Public Library's Hours web page?

Your Answer: ɔrary.org/hours-locations Check Answer

Correct!

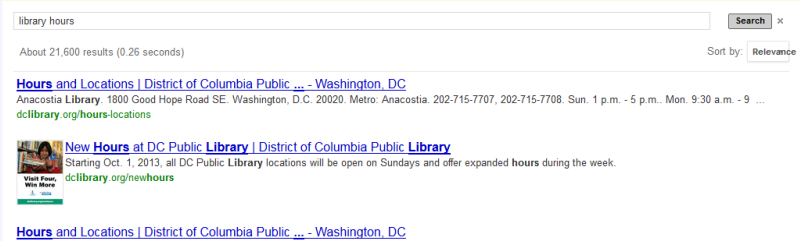
2) What is the web address or URL of the DC Public Library's Library Card web page?

Your Answer: Check Answer

3) What is the web address or URL of the DC Public Library's Computer Classes web page?

Your Answer: Check Answer

Google Search Box:

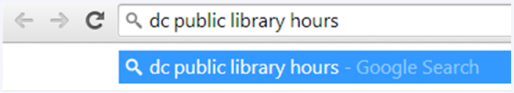


Performing a Basic Search Using Your Internet Browser

The steps above describe only one way to reach and search for information through using Google. There are other ways to reach search engines. Another way is instead of going to Google's website first, you can search by using your Internet browser's address bar.

For example, we can type in "dc public library hours" into the address bar, and press the Enter key on the keyboard.

Picture 10. Using the Internet Browser's Address Bar to Search the Web

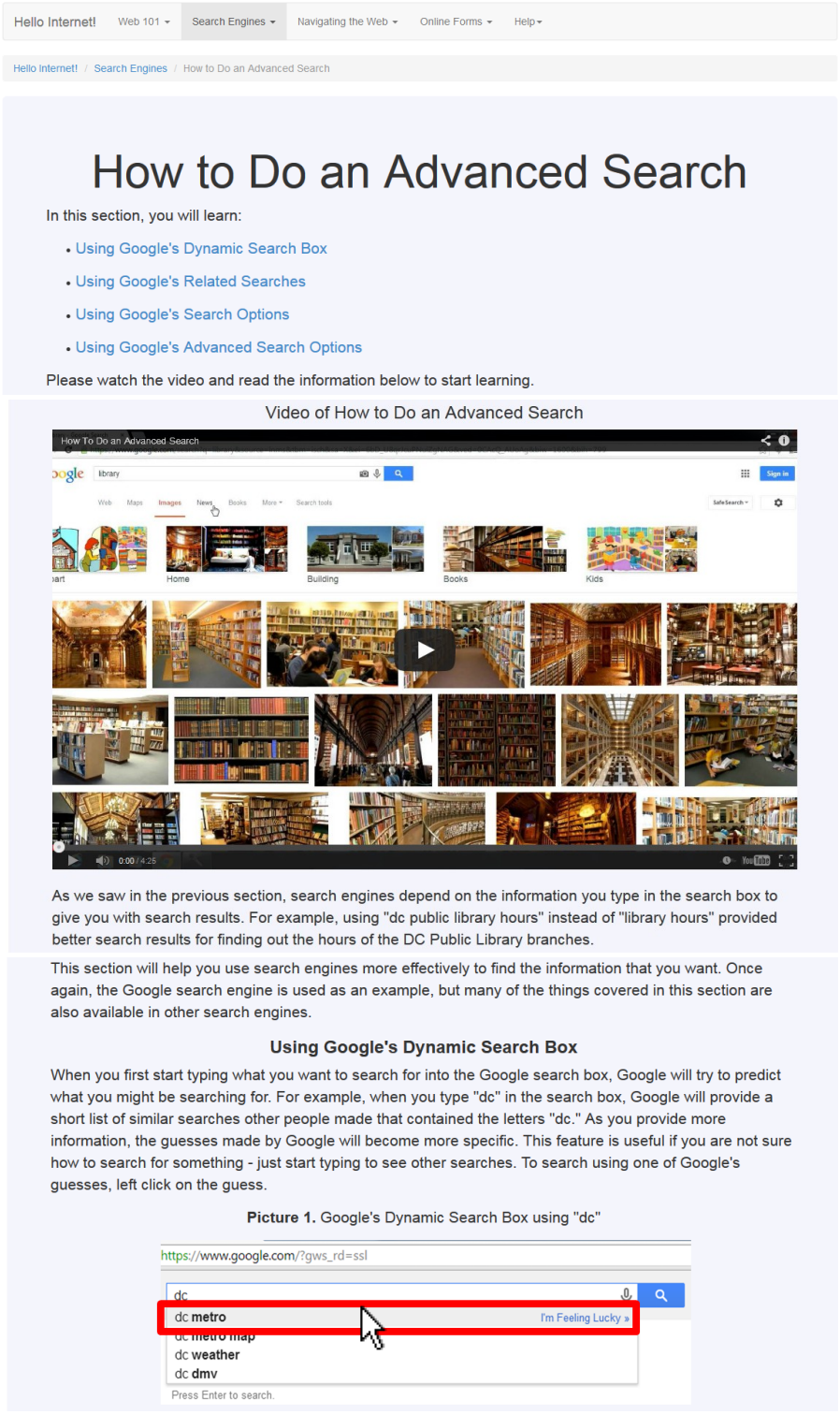


The Internet browser will use your search terms, enter the search terms like "dc public library" into a search engine, and display the search results to choose from.

The next section will show you how to be more specific with your searches to get better search results.

Go Back to What's a Search Engine? Continue to How to Do an Advanced Search

How to Do an Advanced Search

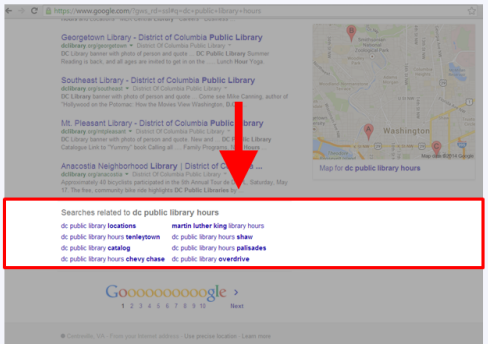


Using Google's Related Searches

If you cannot find the information that you were hoping for after searching, you should refer to the **related searches** listed at the bottom of the results page. These related searches are searches made by other users that are similar to your search. Sometimes rephrasing your search can provide better results. Related searches can also point you to related information you might be interested in.

For example, at the bottom of the Google search results page for "dc public library", a related search concerning "dc public library locations" appears. To search for "dc public library locations," left click on the blue hyperlinked related search text.

Picture 2. Google's Related Searches for "dc public library hours"

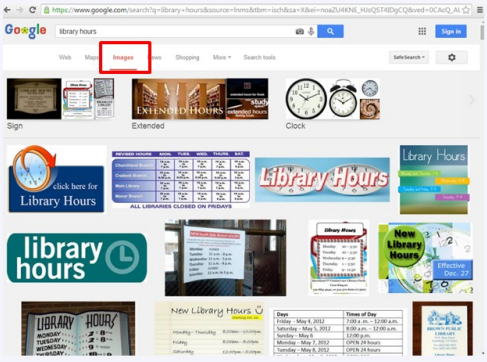


Using Google's Search Options

When searching Google, you search the entire web. However, underneath the search box, you can select different parts of the web to search.

For example, if you wanted to view only the pictures related to what you entered into the search box, you can left click on the **Images** link.

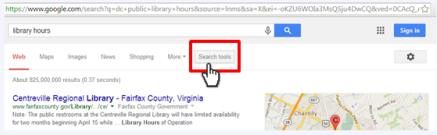
Picture 3a. Google Images for "library hours"



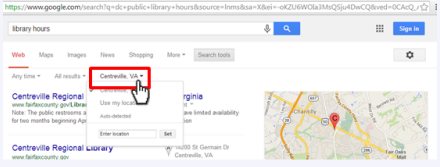
If you left click on the Search Tools link on the main Google Search Results page, you will be able to limit the search results by date the page was last updated, how well the text on the page matches your search box, and your location.

For example, by left clicking on location or in this case Centreville, VA, you can set your location to Washington, DC to see the DC Public Library Hours results when you search for "library hours."

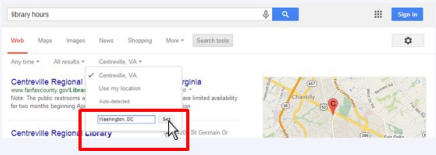
Picture 3b. Left click on Search Tools



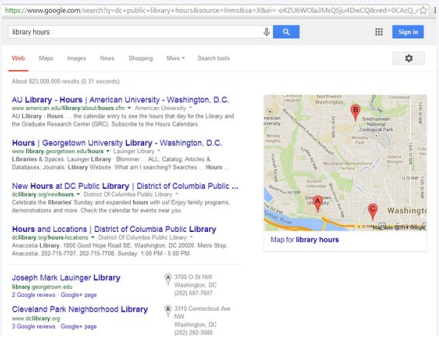
Picture 3c. Left click on the Location - in this case, Centreville, VA



Picture 3d. In the text box, enter "Washington, DC", and left click the Set button



Picture 3e. By changing the location to Washington, DC, the search results from the DC Public Library appear

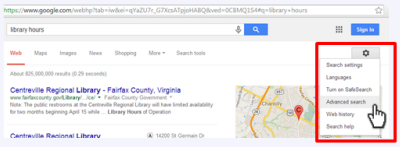


Using Google's Advanced Search Options

If you are having trouble finding what you are looking for using the tips above, Google's **Advanced Search** may be able to help you. Instead of using a singular search box, Google's Advanced Search relies on a series of search boxes that help you be more specific about what you are looking for.

To access the Advanced Search from the search results page, click on the Gear icon located in the top right portion of the screen and left click on Advanced Search.

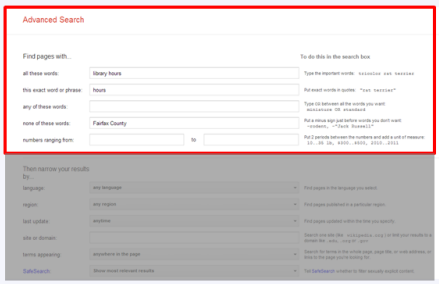
Picture 4a. Left click on the Gear icon and then Advanced Search to get to Google's Advanced Search



Google's Advanced Search screen loads and has two main parts. The top part called "Find pages with ..." contains a series of text boxes that allow you to provide more information about your search.

For example, you can provide which words to include in the search which exact words should appear and which words should not be searched on. If we use our first search of "library hours" in the Advanced Search, we would want the exact words of "hours" to appear. We would not want the words "Fairfax County" to be searched on.

Picture 4b. Find pages with ... Advanced Search Section

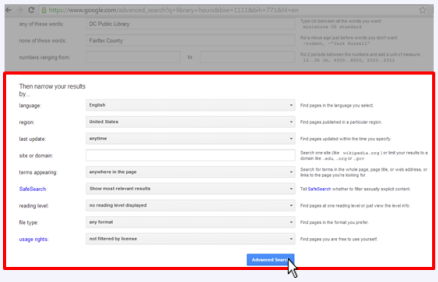


The bottom part called "Then narrow your results by ..." contains a series of text boxes that allow you to specify information about the websites themselves including

- What region of the world they are
- What language they are in
- When the website was last updated

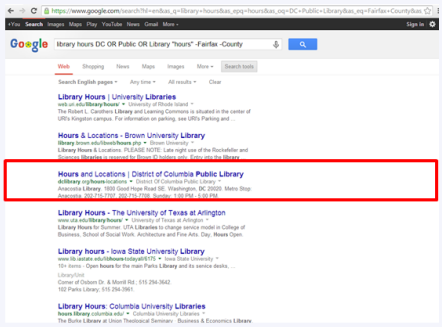
If we use our first search of "library hours" in the Advanced Search, we would enter Washington, DC as the region we are interested in.

Picture 4c. Then narrow your results by ... Advanced Search Section



Using the Advanced Search Option in the example above, the following search results appear. Notice that these search results are similar to the search results we received for "dc public library hours." Providing more information in the search box at the beginning gives the search engine the best chance of finding the website that you are looking for.

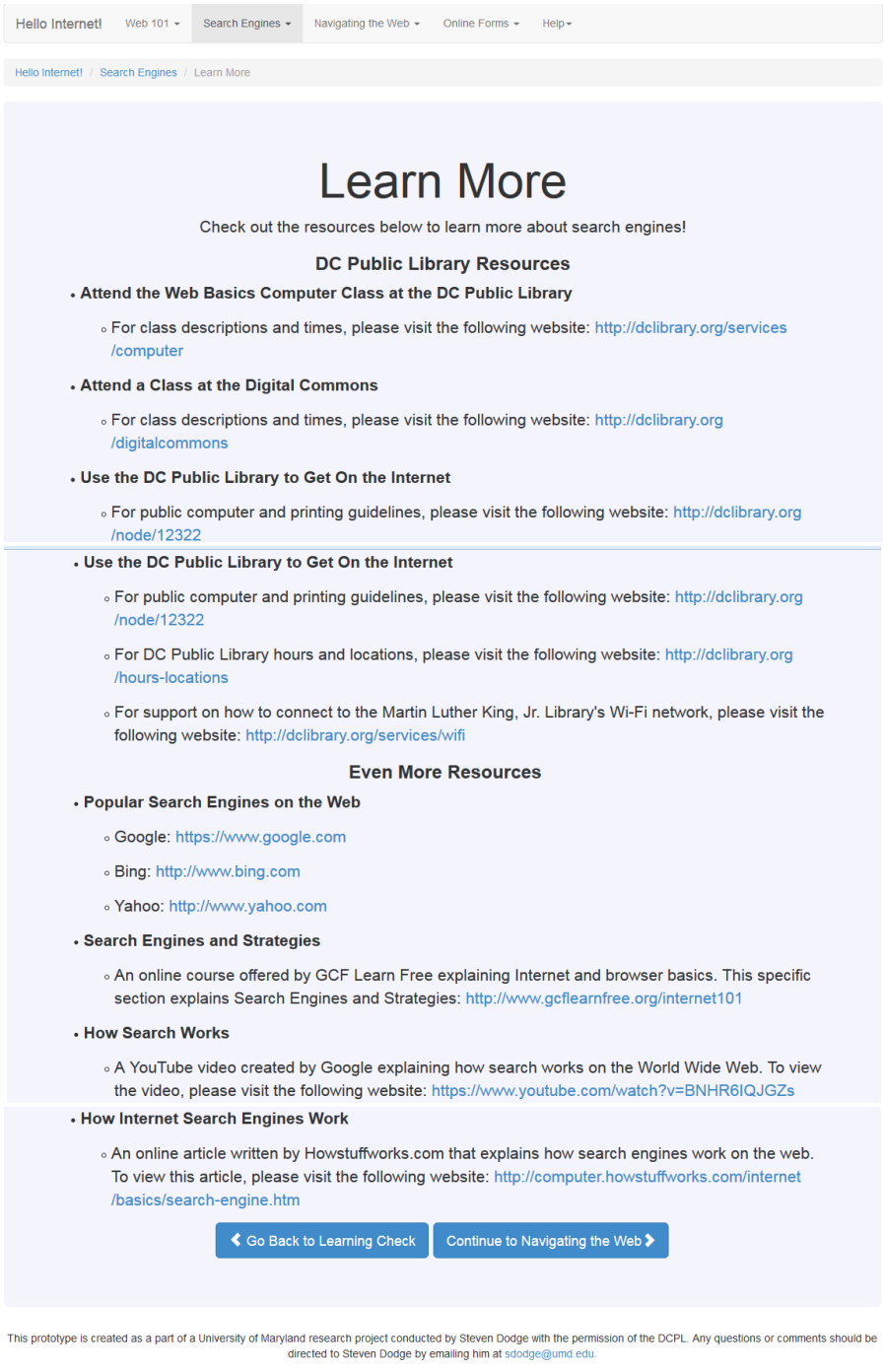
Picture 4d. Google's Advanced Search Results for "library hours"



❮ Go Back to How to Do a Basic Search | Continue to Learning Check ❯

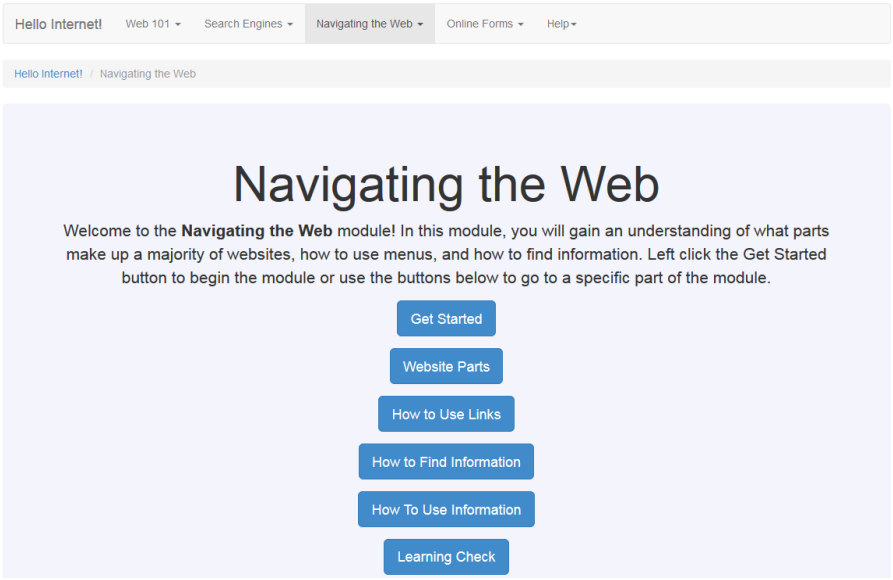
Learning Check

Learn More


Hello Internet!
Web 101
Search Engines
Navigating the Web
Online Forms
Help
Hello Internet! / Search Engines / Learn More
Learn More
Check out the resources below to learn more about search engines!
DC Public Library Resources
Attend the Web Basics Computer Class at the DC Public Library
For class descriptions and times, please visit the following website: http://dclibrary.org/services/computer
Attend a Class at the Digital Commons
For class descriptions and times, please visit the following website: http://dclibrary.org/digitalcommons
Use the DC Public Library to Get On the Internet
For public computer and printing guidelines, please visit the following website: http://dclibrary.org/node/12322
Use the DC Public Library to Get On the Internet
For public computer and printing guidelines, please visit the following website: http://dclibrary.org/node/12322
For DC Public Library hours and locations, please visit the following website: http://dclibrary.org/hours-locations
For support on how to connect to the Martin Luther King, Jr. Library's Wi-Fi network, please visit the following website: http://dclibrary.org/services/wifi
Even More Resources
Popular Search Engines on the Web
Google: https://www.google.com
Bing: http://www.bing.com
Yahoo: http://www.yahoo.com
Search Engines and Strategies
An online course offered by GCF Learn Free explaining Internet and browser basics. This specific section explains Search Engines and Strategies: http://www.gcflearnfree.org/internet101
How Search Works
A YouTube video created by Google explaining how search works on the World Wide Web. To view the video, please visit the following website: https://www.youtube.com/watch?v=BNHR6IQJGZs
How Internet Search Engines Work
An online article written by Howstuffworks.com that explains how search engines work on the web. To view this article, please visit the following website: http://computer.howstuffworks.com/internet/basics/search-engine.htm
Go Back to Learning Check
Continue to Navigating the Web
This prototype is created as a part of a University of Maryland research project conducted by Steven Dodge with the permission of the DCPL. Any questions or comments should be directed to Steven Dodge by emailing him at sdodge@umd.edu.

Navigating the Web Screenshots

Navigating the Web Home Page



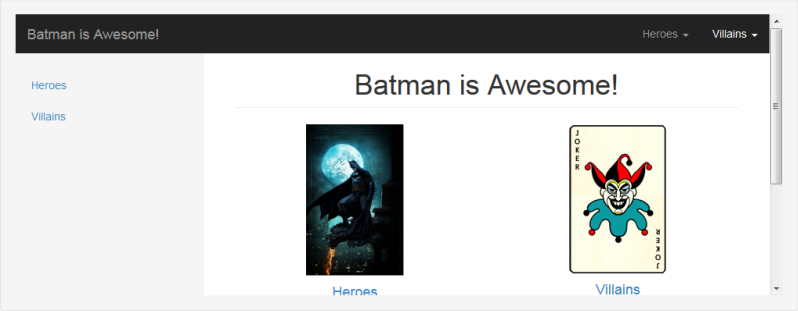
Website Parts

Finding the information you are interested is not always as easy as the example above. To find information on web pages, knowing the common parts of websites will help you navigate websites more easily. Keep in mind that while websites can be very unique, websites usually have one or more of these common parts. These common website parts are explained and shown in the next sections.

What is the Batman is Awesome! website?

Throughout this module, we will be referring to a fictional Batman superhero website created by a fan to share the love of Batman with the web. This website will be used to show the different parts of websites, and you will have chances to interact with this website. If you cannot view the web page below, you can visit the web page by left clicking here.

Picture 2. Batman Is Awesome Website



Go Back to Navigating the Web | Continue to How to Use Links

How to Use Links

Hello Internet! Web 101 Search Engines Navigating the Web Online Forms Help

Hello Internet! / Navigating the Web / How to Use Links

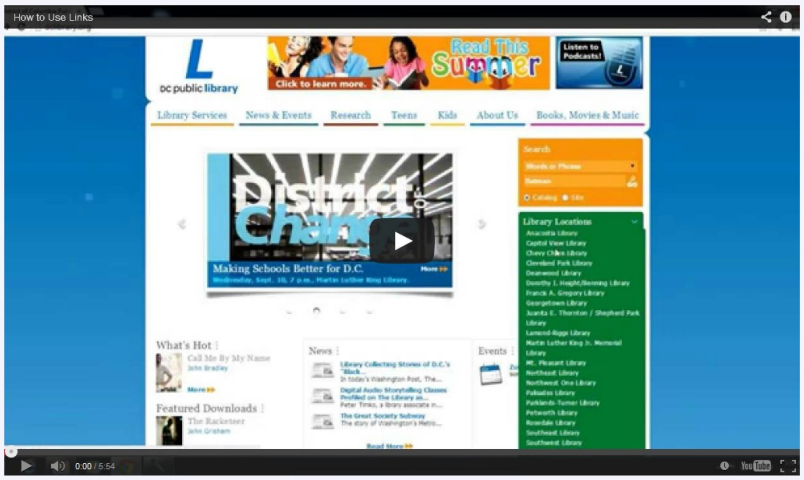
How to Use Links

In this section, you will learn:

- How to Use Menus
- How to Use Website Logos
- How to Use Breadcrumbs
- How to Use Search Engines
- How to Use The Footer

Please watch the video and read the information below to start learning.

Video of How to Use Navigation Parts



Navigation Parts

Navigation parts are parts of the website that help you move around the page, around other pages in the same website, and even to other websites. The most common navigation part of a website is something that we have talked a lot about in previous sections - **hyperlinks**.

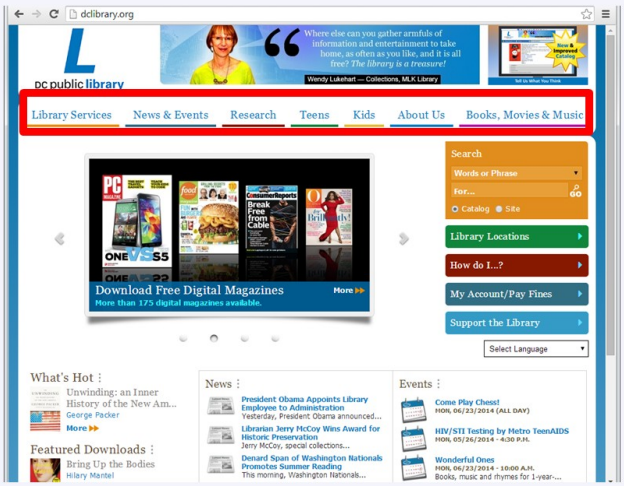
Hyperlinks connect information throughout the World Wide Web and serve as our way to move around the World Wide Web. Websites use hyperlinks in different ways as we will learn in this section.

How to Use Menus

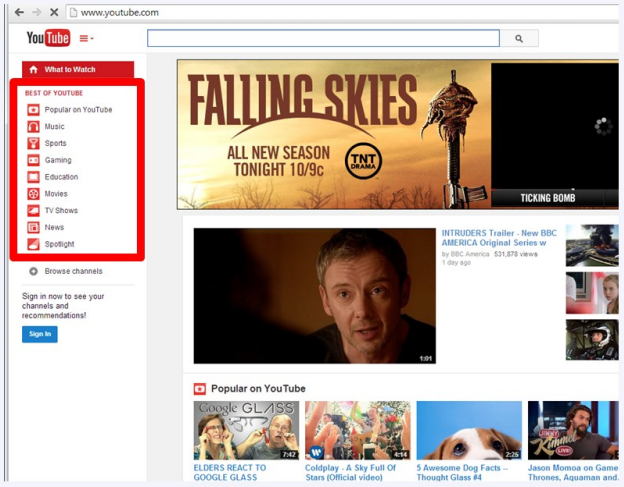
One way that websites use hyperlinks is through creating **menus**. A menu is a collection of hyperlinks meant to help us move quickly to different web pages on the website.

Menus come in many different shapes, sizes, colors, and locations on the screen. Some different menus from different popular websites across the World Wide Web are shown below outlined in red boxes to get an idea of how different menus can be.

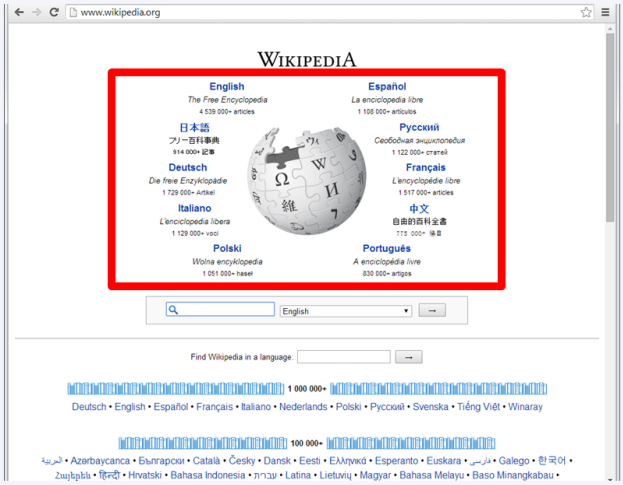
Picture 1a. Website Showing the Menu at the Top of the Page - DC Public Library



Picture 1b. Website Showing the Menu on the Left Side of the Page - YouTube

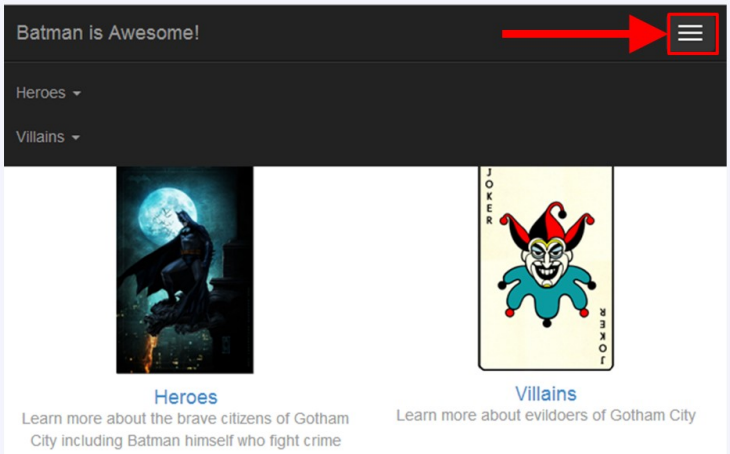


Picture 1c. Website Showing the Menu as the Entire Page - Wikipedia



On smartphones and smaller screens, website menus are often shrunk down so you can see more of the site. To expand the menu, left click the icon as shown in the figure below outlined in the red box.

Picture 2. Expanding Mobile Menus



While menus are different, menus also share similar features. Most websites display their menu at the top or left side of the page. Most hyperlinks in menus are also grouped into categories. These categories are determined by the people who created the website.

Take for example the Batman fan website. The Batman fan website has the following web pages:

- Home Page
- Batman's Hero Page
- Robin's Hero Page
- Police Commissioner Gordon's Hero Page
- Batgirl's Hero Page
- The Joker's Villain Page
- Catwoman's Villain Page
- Bane's Villain Page

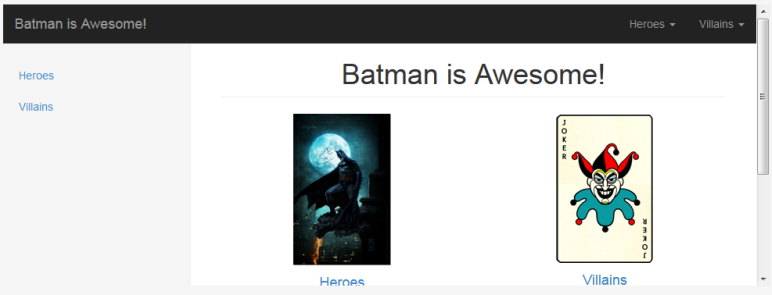
These pages could be organized into many different categories. For example, the pages could by grouped into categories based on if they are a page about a hero or villain.

Let's try out using different menus for the Batman fan website below. For each menu, find the Batman's Hero page. Notice how each menu works differently but still takes you to Batman's Hero Page.

Try It Out! - Top Menu Only

Try finding the Batman's Hero Page using only the menu located at the top of the page. If you are viewing the website on a mobile device or smaller screen, you may have to expand the top menu. To do so, look at Picture 2 for more information.

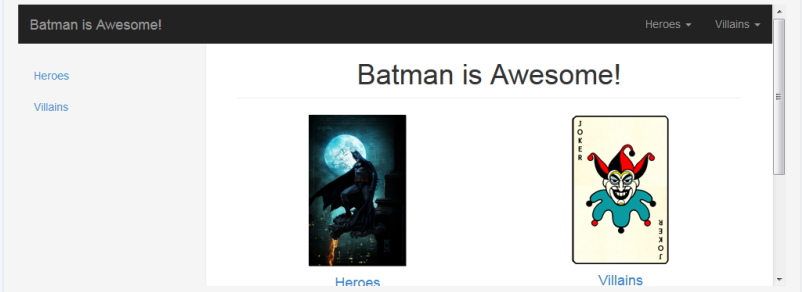
If you cannot view the web page in the section below, you can visit the web page by left clicking here.



Try It Out! - Middle Menus Only

Try finding the Batman's Hero Page using only the menu located on the middle of the page.

If you cannot view the web page in the section below, you can visit the web page by left clicking here.



While menus are certainly a part of moving around websites, there are more navigation parts that websites use. These parts are described below.

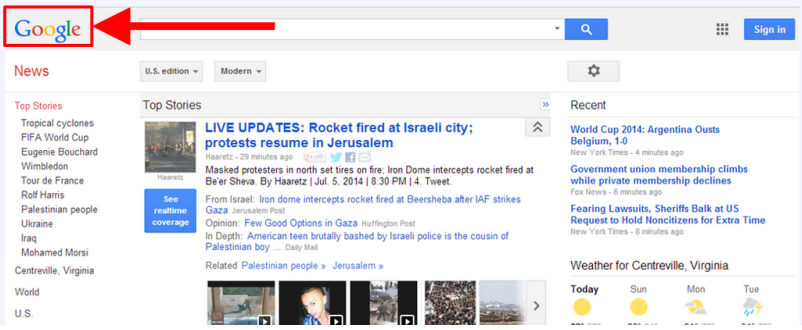
How to Use Website Logos

Website logos are commonly used as hyperlinks to return to the **home page** of a website. A home page is the starting place for the website.

For example, the search engine Google has many different pages, and its home page is http://www.google.com. To get back to home page while searching for information on Google, you can always click on the Google logo in the upper left hand corner of the page.

Many logos on other websites also hyperlink to the home page. If you ever get lost while using a web page, you can always go back to the home page by left clicking on the website logo.

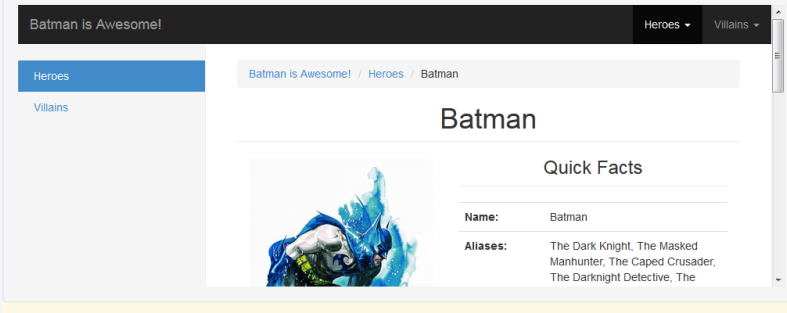
Picture 3. Website Logo for Google on the Google News Homepage



Try It Out!

Try using a website logo to get to the home page by left clicking the website logo for the Batman Is Awesome website. The website logo is the text **"Batman is Awesome!"**

If you cannot view the web page in the section below, you can visit the web page by left here.

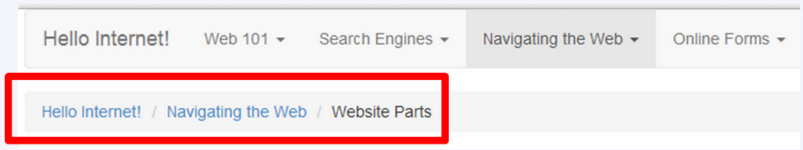


How to Use Breadcrumbs

Breadcrumbs are often used by websites to let you know where you are in a website. Breadcrumbs get their name from Hansel and Gretel who left a trail of breadcrumbs in the woods to find their way back home. Breadcrumbs on websites work the same way where the breadcrumb forms a trail for you to follow starting from the home page of the website and ending on the page you are currently viewing.

Breadcrumbs are used on this website. The breadcrumb for this page is reproduced below and outlined in red. Like on this page, most breadcrumbs are found near the top of the web page.

Picture 4. Website Parts Breadcrumb



Try It Out!

Try out using breadcrumbs by navigating to different pages on the Batman fansite. Notice how the breadcrumb changes depending on the page that you navigate to.

If you cannot view the web page in the section below, you can visit the web page by left clicking here.

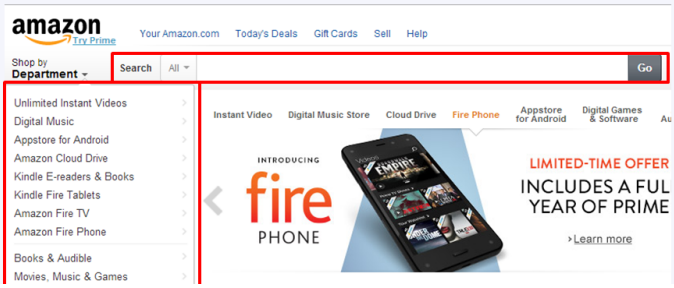
How to Use Search Engines

Search engines are not only used by Google, Bing, and Yahoo! to find information on the entire World Wide Web. Search engines can also be used by websites to help people find information just on their website alone.

Take for example the world's largest online retailer Amazon. While Amazon does provide menus for online shoppers to find the items they want to buy, they also provide a search box so people can type in what they want to buy and find it faster than going through the menus.

Search boxes can appear anywhere on the site but are commonly found near the top portion of the screen and usually in the right corner.

Picture 5. Amazon.com's Menus and Search Box allow people to use both navigation parts to find what they are looking to buy

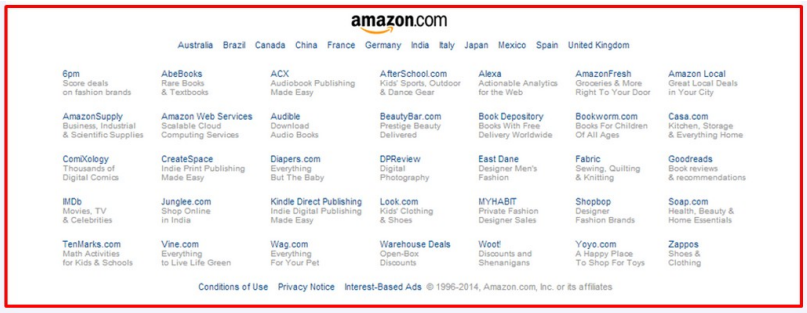


For more information on how to use search engines, please visit the Search Engines module.

How to Use The Footer

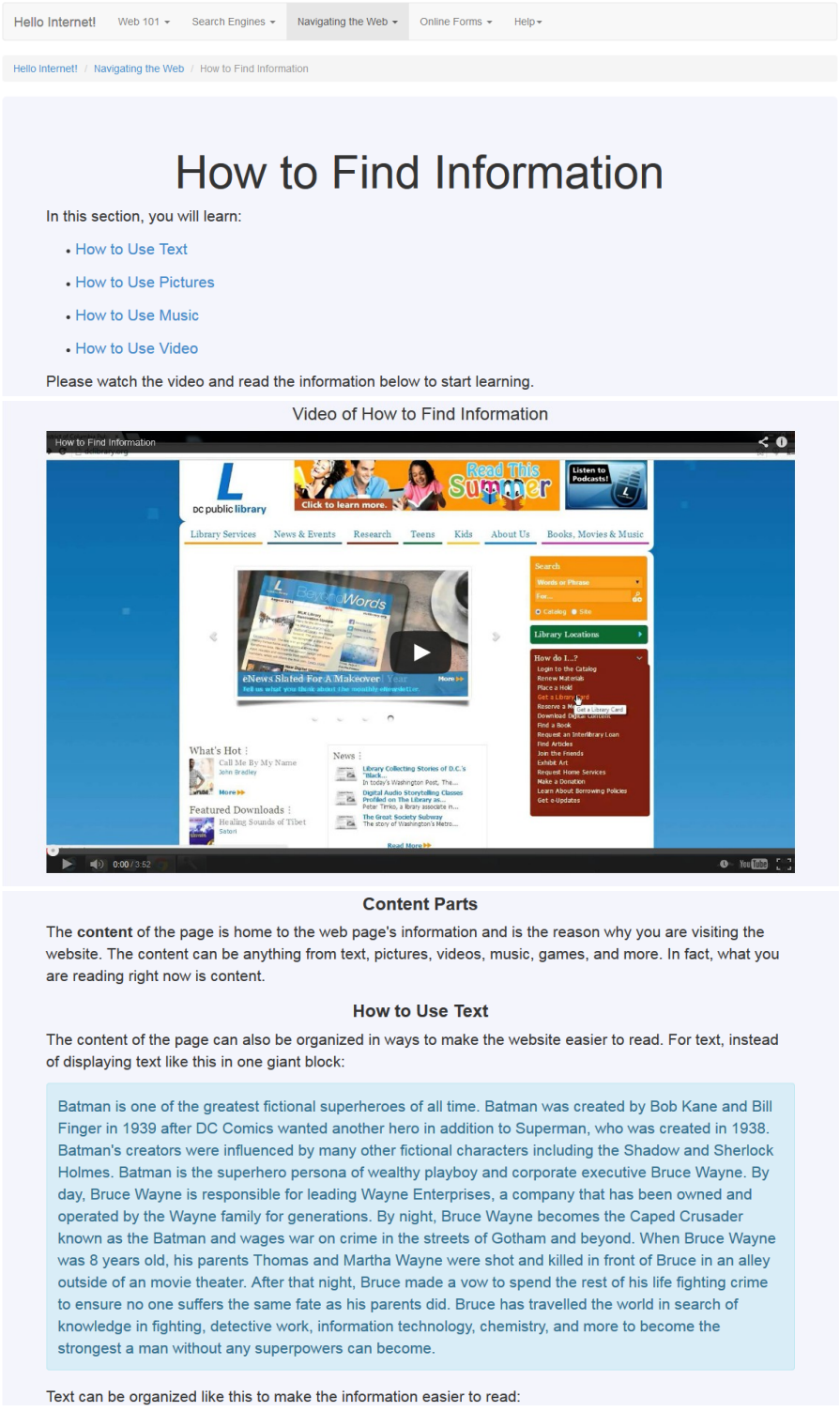
While the top portion of the website usually contains a number of navigation parts, the bottom section of the website also known as the **footer** can also contain navigational parts. Commonly for businesses, hyperlinks for contacting the business as well as street address and phone number can be found.

Picture 6. Footer Section - For Amazon's website, the footer is home to the different websites that Amazon operates around the world such as Australia and United Kingdom as well as the different departments that Amazon has such as 6pm and Zappos.



Go Back to Website Parts | Continue to How to Find Information

How to Find Information



Creation of Batman

Batman is one of the greatest fictional superheroes of all time. Batman was created by Bob Kane and Bill Finger in 1939 after DC Comics wanted another hero in addition to Superman, who was created in 1938. Batman's creators were influenced by many other fictional characters including the Shadow and Sherlock Holmes.

Who is Batman?

Batman is the superhero persona of wealthy playboy and corporate executive Bruce Wayne. By day, Bruce Wayne is responsible for leading Wayne Enterprises, a company that has been owned and operated by the Wayne family for generations. By night, Bruce Wayne becomes the Caped Crusader known as the Batman and wages war on crime in the streets of Gotham and beyond.

When Bruce Wayne was 8 years old, his parents Thomas and Martha Wayne were shot and killed in front of Bruce in an alley outside of an movie theater. After that night, Bruce made a vow to spend the rest of his life fighting crime to ensure no one suffers the same fate as his parents did.

Batman's Training

Bruce has travelled the world in search of:

- knowledge in fighting,
- detective work,
- information technology,
- chemistry,
- and more

to become the strongest a man without any superpowers can become.

- **Larger text** indicate headings or serve as short descriptions about what the text below is about.
- **Lists** - bulleted or numbered - help make sections of text stand out.

You can use the structure of the content to find information more quickly. For example, if you were interested in learning more about who created Batman, looking under the **Creation of Batman** header for the information would be a good start.

How to Use Pictures

Pictures like text can be organized in any number of different ways. Pictures commonly appear throughout a site. A collection of pictures is usually shown in a **slideshow** or **gallery** where you can move between pictures in the collection. Try moving between the pictures in the gallery below.

Try It Out!

Try using the gallery below. The gallery will change pictures automatically. To change the pictures yourself, left click the left side or right side of the gallery.

How to Use Music

Music can start playing when a web page appears in your browser or when you tell it to play. For example, the controls below will allow you to play a sound. While music controls can be different, they all have same common features.

- To start playing the sound, press the ▶ or play button.
- To stop or pause playing the sound, press the ❚❚ or stop button.
- The volume is controlled by left clicking the 🔊 or speaker icon and dragging the dot up to make the sound louder and down to make the sound softer.

  If you can't hear the sound below, make sure to increase the volume of your device's speaker.

Try It Out!

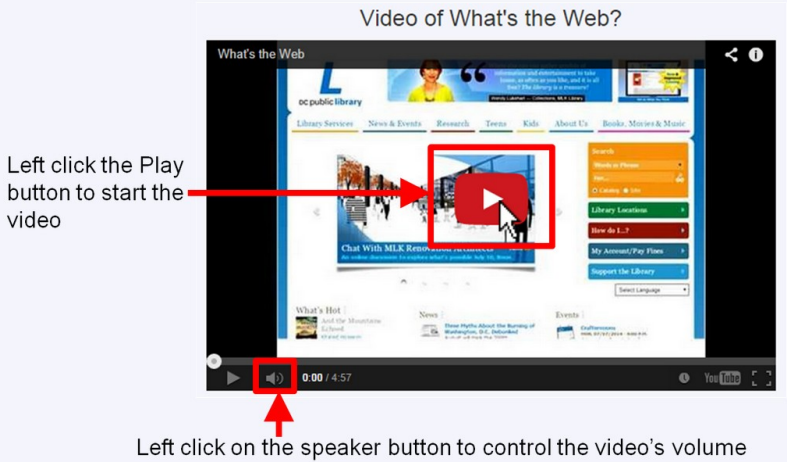
Try start playing and stopping the podcast below using the play and stop buttons.

Music 1. The following is the first podcast from a science fiction podcast called Welcome to Nightvale. Podcasts are like modern day radio programs that span a variety of topics. To play this podcast, press the Play button. To learn more about Welcome to Nightvale, please follow this hyperlink: http://commonplacebooks.com/

How to Use Video

Like music, **video** can also start when a web page appears or when you tell it to play. Video controls can also be different but also share common features that are similar to the music controls.

Picture 1. How to Play a Video



Try It Out!

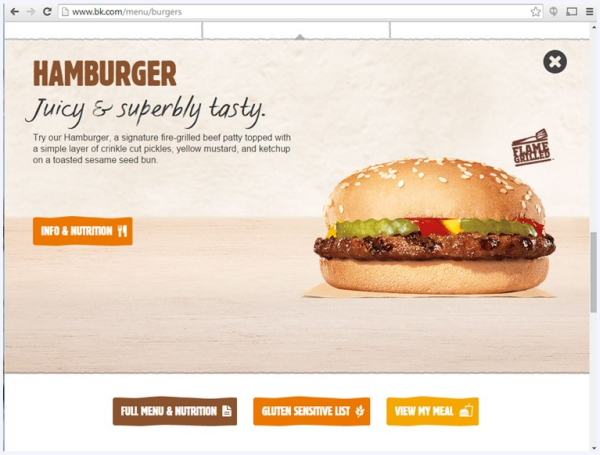
Try playing a video from the DC Public Library below by left clicking the triangle button in the middle of the video.

Go Back to How to Use Links | Continue to How to Use Information

How to Use Information

You later learn that according to Burger King's website that Burger King's hamburgers are the best.

Picture 2. Burger King's Hamburger Page



The source of the information is influencing the information on the website. However, if you learn from a Washington Post article that a nationwide survey conducted by the National Center for Hamburgers says that Five Guys burgers are the best, you have more of a reason to trust this information considering the source.

- Who wrote the content on the website? A popular source for information is the online encyclopedia called Wikipedia. Wikipedia has articles on all kinds of information. Wikipedia gets its information from people on the Internet that may or may not have knowledge about the subject of the article. Anyone on the Internet can edit Wikipedia pages, which can make Wikipedia a less reliable and trustworthy source of information.

For example, according to Wikipedia, Kitty Purry is President Obama's family cat. However, the official website of the White House states that Bo and Sunny are Presdient Obama's family dogs, and the family does not own any cats. In this case, it is better to trust the official White House website versus the Wikipedia article.

Picture 3. Unofficial Kitty Purry Wikipedia Page

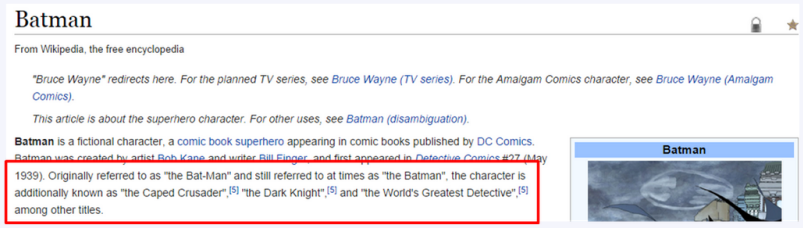
Picture 4. Official Bo White House Page

- Does the website credit other sources for information? How did the website get the information it is displaying? Understanding these information sources and the trustworthiness of the information sources can help determine the trustworthiness of the websites.

For example, the Kitty Purry Wikipedia article was missing citations or credits to other information sources like books, newspaper articles, journal articles, movies, websites, and more. Therefore, trusting this article is risky, especially when there is official information from the White House's website that was not credited.

However, the Wikipedia article for the superhero Batman contains 168 citations or references. For example, the information in the article that states Batman is also known as the Dark Knight. This information is credited to a book written by Michael L. Fleisher called *The Encyclopedia of Comic Book Heroes Volume 1 Batman* as shown by citation **[5]**. By searching on the ISBN number in the citation, we can determine that this book does exist as shown by the Amazon.com page for the book.

Picture 5. Batman Wikipedia Page



Picture 6. Batman Wikipedia References

Picture 7. Amazon.com Page for The Encyclopedia of Comic Book Heroes Volume 1 Batman

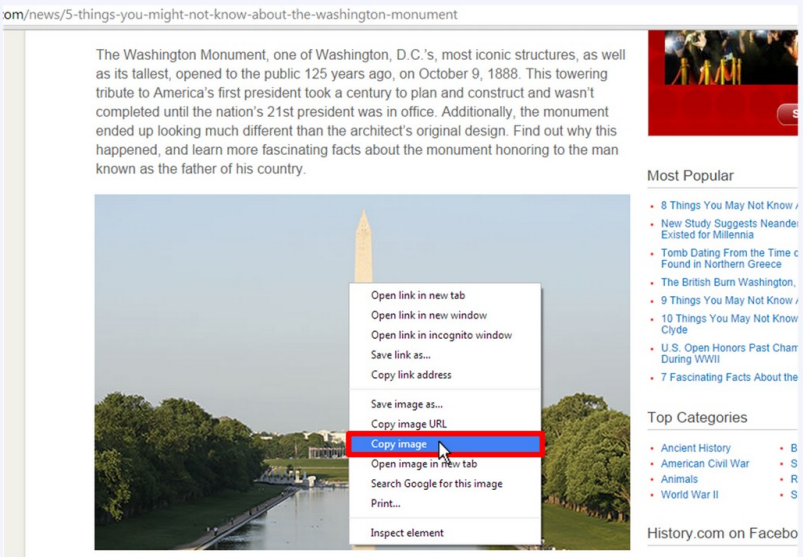
How to Cite Online Information

Therefore, when you use information from online for a research paper, email to a friend, a work project, or something else, it is important to keep the three questions above in mind. If you find information from a website that you want to use, you should always give credit to the source in which you received the information from.

For an example of how to properly cite information you received from the web, let's say you find a great picture of the Washington Monument that you want to use for your report on Monuments in Washington, DC. You found the image of the Washington Monument on the History Channel's website.

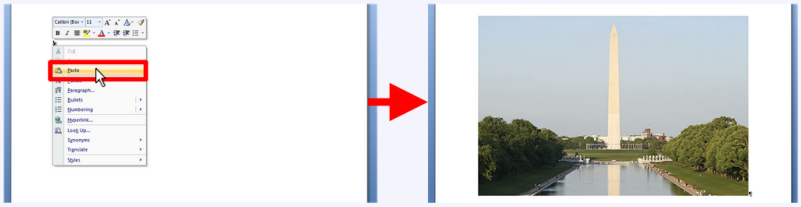
1) To use this picture in your report, you can right click on the picture, and select "Copy image" from the drop down menu in your Google Chrome browser.

Picture 8. Copy Image from Google Chrome



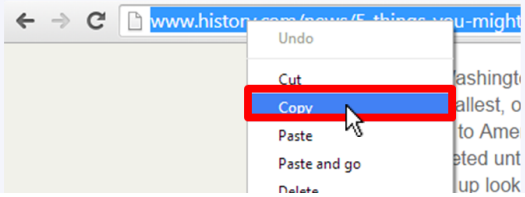
2) Then, in your Word document, you can right click in the location where you want to insert the picture, and select "Paste" from the drop down menu.

Picture 9. Paste Picture into Microsoft Word



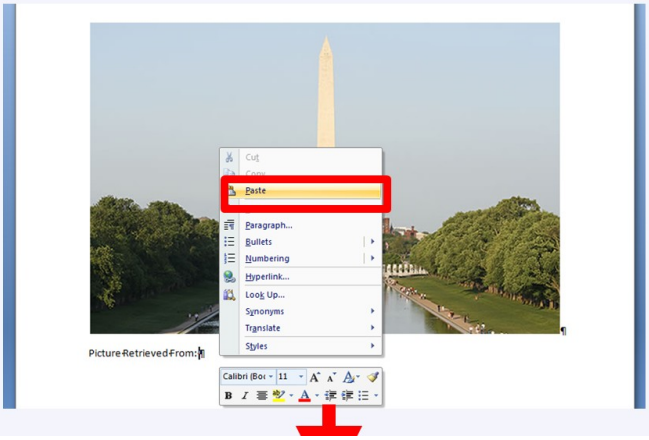
3) In your Google Chrome browser, right click in the address bar, and select "Copy" from the drop down menu to copy the web address. We will use the web address to give credit for the picture we are using.

Picture 10. Copy Web Address from Google Chrome



4) Then, in your Word document, underneath the picture, type in "Picture Retrieved From: ". Then, paste in the web address you copied by right clicking and selecting "Paste" from the drop down menu. By adding this text beneath the picture, you have provided credit for using the image in your report. If you were to sell your report to others, you would need to get the written permission of the picture creator to use the picture in your report.

Picture 11. Properly Citing the Picture in Microsoft Word



Picture Retrieved From: http://www.history.com/news/5-things-you-might-not-know-about-the-washington-monument

Go Back to How to Find Information | Continue to Learning Check

Learning Check

Hello Internet! | Web 101 | Search Engines | Navigating the Web | Online Forms | Help

Hello Internet! / Navigating the Web / Learning Check

Navigating the Web Learning Check

In this section, you will have a chance to test what you learned in the previous Navigating the Web sections. Answer the two scenarios below about Navigating the Web.

In the following scenarios, you will be asked to the find certain information. Follow the directions for each scenario, and left click the Check Answer button to see if you answered the scenario correctly.

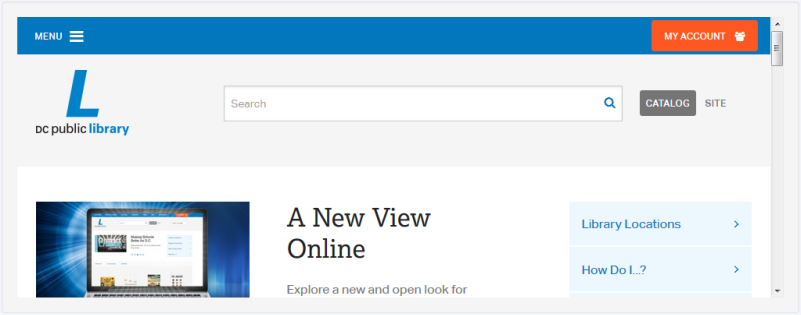
Scenario 1

You just moved to Prince George's County near Washington, DC and are excited to be living in the nation's capital. You will have to use the Metro to get to work and want something to read on the commute. You are interested in finding how to get a library card.

If you cannot view the web page in the section below, you can visit the web page by left clicking here.

Question: Which counties and cities in the District of Columbia, Maryland, and Virginia can you get a free library card? Will you be able to get a free library card?

Use the DC Public Library's website below to find the answer, and mark the counties and cities you find. Left click the Check Answer button to see if you found the right answer. If you cannot find the DC Public Library web page with the information you are looking for, left click the Go To Page button to be taken to the correct page.



Question 1) Which of the following counties and cities in the District of Columbia, Maryland, and Virginia can you live in and get a DC Public Library card?

- ☐ Alexandria
- ☐ Anne Arundel County
- ☐ Arlington County
- ☐ Bedford County
- ☐ Baltimore
- ☐ District of Columbia
- ☐ Fairfax County
- ☐ Falls Church
- ☐ Franklin County
- ☐ Fredrick County
- ☐ Loudoun County
- ☐ Montgomery County
- ☐ Prince George's County
- ☐ Prince William County
- ☐ Virgina Beach

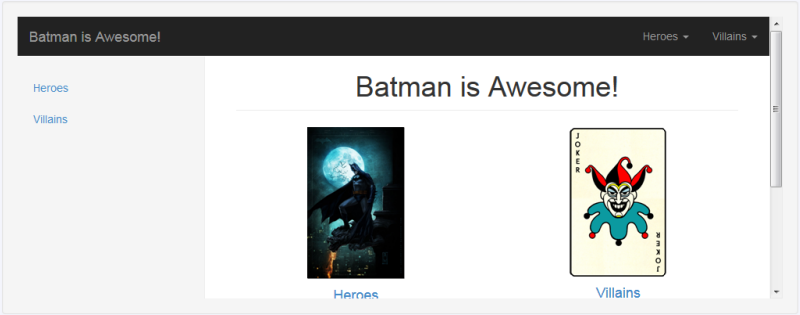
Check Answer | Go To Page

Try It Out! - Scenario 2

You and your friend are having a debate about what Robin's true secret identity is in the comics. Robin is the superhero sidekick of Batman. You know it is Richard Grayson, but your friend thinks it is Tim Drake. To find out the real secret identity of Robin, you come across a Batman fansite.

Question: Using the website below, find out Robin's secret identity. Mark the true secret identity of Robin below. Click the Check Answer button to see if you are right. If you cannot find the correct page, left click the Go To Page button.

If you cannot view the web page in the section below, you can visit the web page by left clicking here.



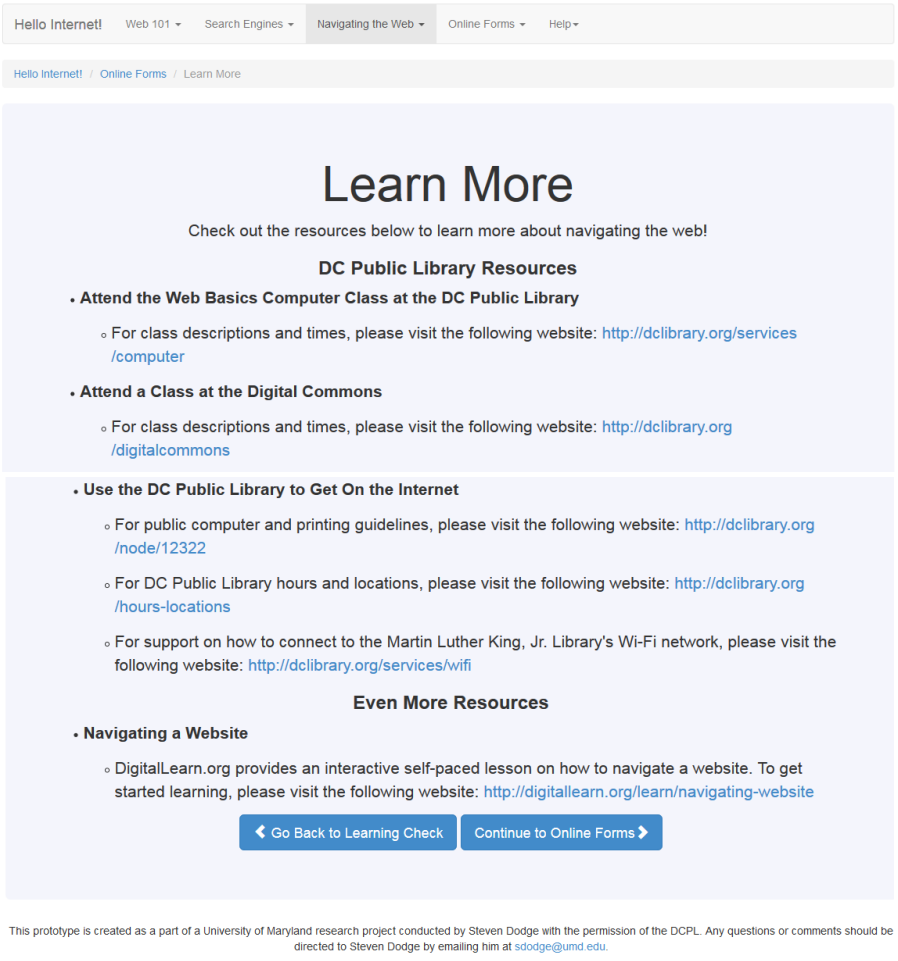
Question 2) What is the true secret identity of Robin?

- ☐ Barbara Gordon
- ☐ Bruce Wayne
- ☐ Damian Wayne
- ☐ James Gordon
- ☐ Jason Todd
- ☐ Richard Grayson
- ☐ Selina Kyle
- ☐ Tim Drake

Check Answer | Go To Page

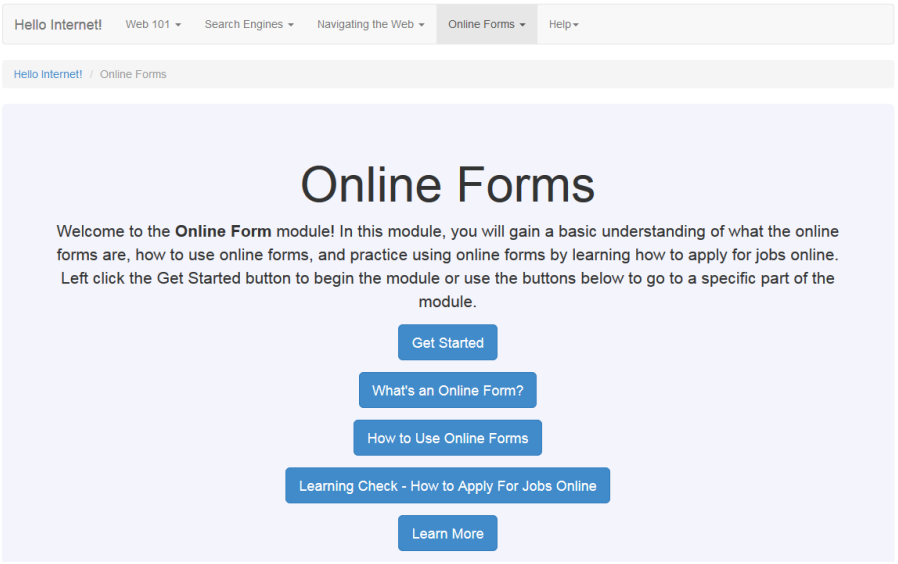
❮ Go Back to How to Use Information | Continue to Learn More ❯

Learn More

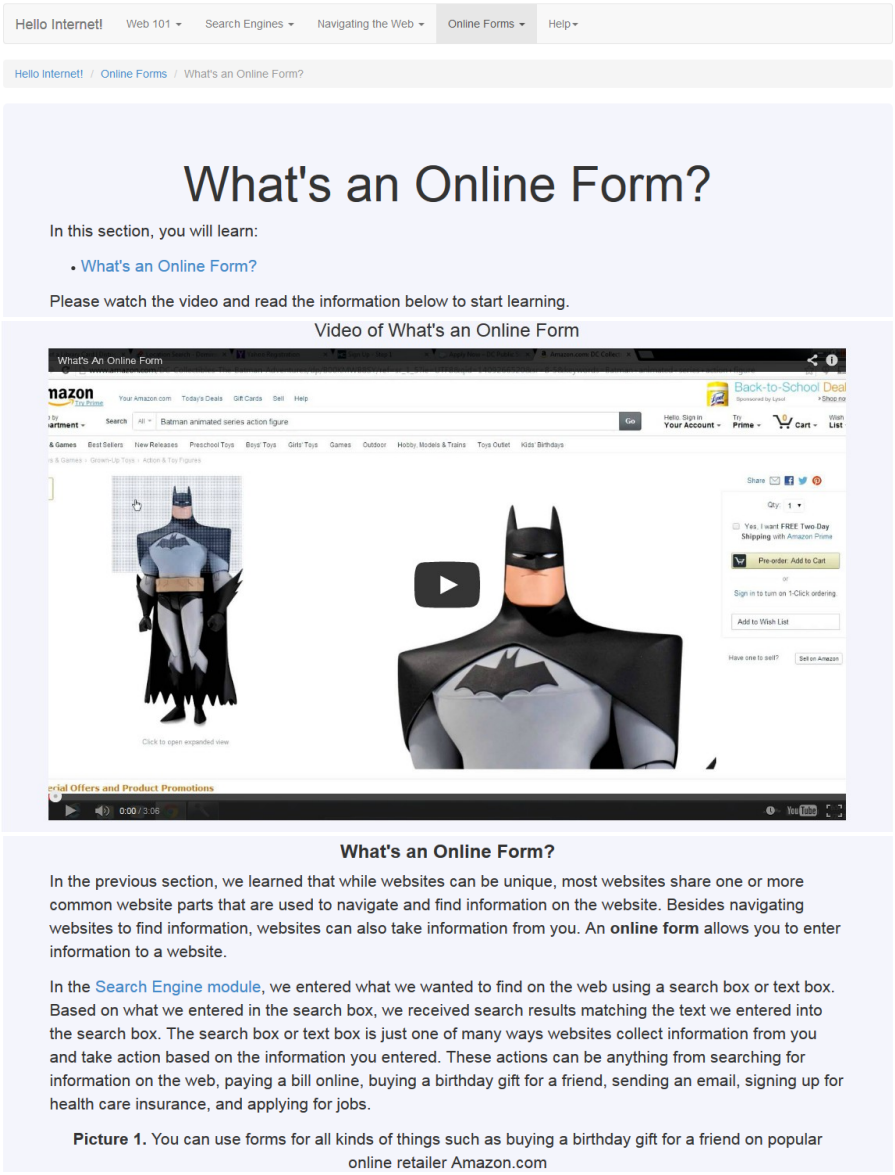

Hello Internet!
Web 101
Search Engines
Navigating the Web
Online Forms
Help
Hello Internet! / Online Forms / Learn More
Learn More
Check out the resources below to learn more about navigating the web!
DC Public Library Resources
• Attend the Web Basics Computer Class at the DC Public Library
◦ For class descriptions and times, please visit the following website: http://dclibrary.org/services/computer
• Attend a Class at the Digital Commons
◦ For class descriptions and times, please visit the following website: http://dclibrary.org/digitalcommons
• Use the DC Public Library to Get On the Internet
◦ For public computer and printing guidelines, please visit the following website: http://dclibrary.org/node/12322
◦ For DC Public Library hours and locations, please visit the following website: http://dclibrary.org/hours-locations
◦ For support on how to connect to the Martin Luther King, Jr. Library's Wi-Fi network, please visit the following website: http://dclibrary.org/services/wifi
Even More Resources
• Navigating a Website
◦ DigitalLearn.org provides an interactive self-paced lesson on how to navigate a website. To get started learning, please visit the following website: http://digitallearn.org/learn/navigating-website
Go Back to Learning Check
Continue to Online Forms
This prototype is created as a part of a University of Maryland research project conducted by Steven Dodge with the permission of the DCPL. Any questions or comments should be directed to Steven Dodge by emailing him at sdodge@umd.edu.

Online Forms Screenshots

Online Forms Home Page



What's an Online Form?

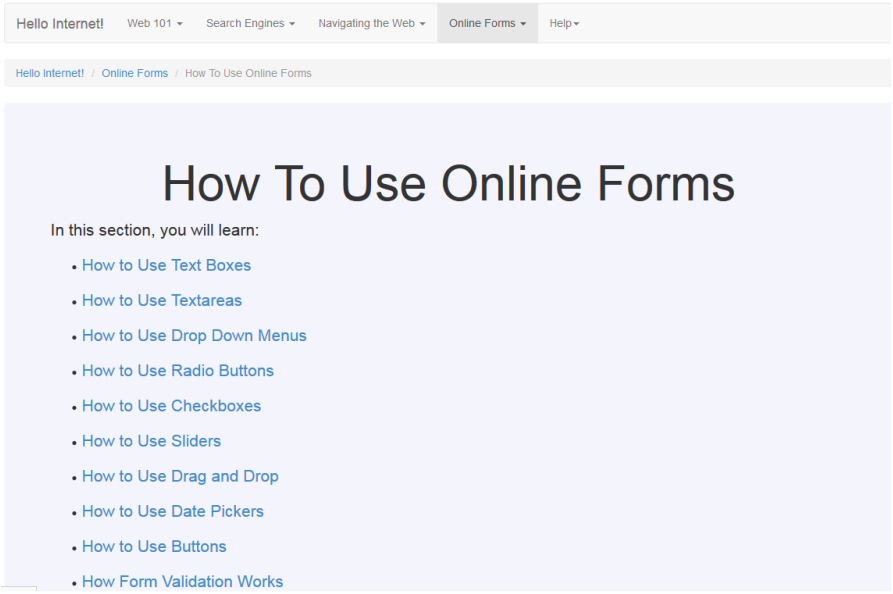


In this module, we show how to use online forms first. Then, we will apply our forms knowledge to a real world example in the learning check - applying for a job online.

❮ Go Back to Online Forms | Continue to How to Use Online Forms ❯

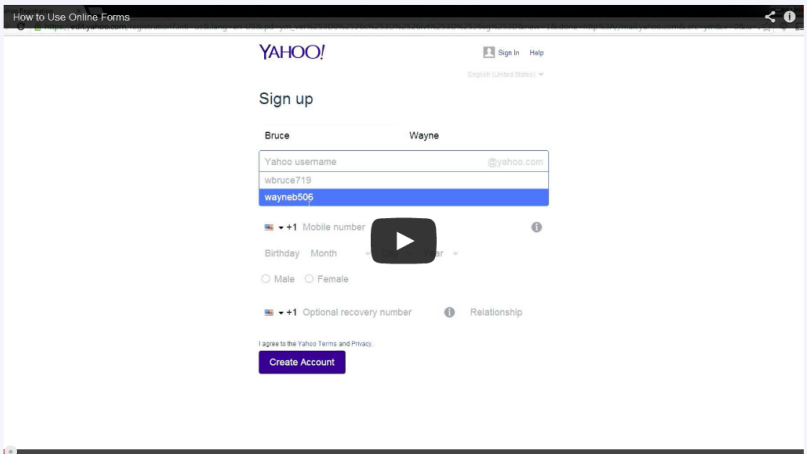
This prototype is created as a part of a University of Maryland research project conducted by Steven Dodge with the permission of the DCPL. Any questions or comments should be directed to Steven Dodge by emailing him at sdodge@umd.edu.

How to Use Online Forms



Please watch the video or read the information below to start learning.

Video of How to Use Online Forms



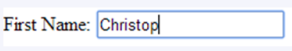
How to Use Online Forms

Websites collect information through using online forms. Forms have different ways of collecting information. These different ways are described below.

How to Use Text Boxes

A **text box** collects a single line of text from you. An example of a text box is the search box we used during the search engine module. Text boxes can be used to provide a wide variety of information including email addresses, passwords, first name, last name, and more.

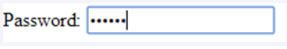
Picture 1a. Example Text Box Used to Enter Your First Name



To use a text box, left click into the text box, and you will see a blinking cursor. When you start typing, you will see what you typed in appear in the text box.

One type of text box used for **passwords** does not show you what you are typing in for security reasons in case someone is watching your screen from behind you. Each key that you type is usually represented with a black circle.

Picture 1b. Example Text Box Used to Enter Passwords



Try It Out!

Try out using a text box by entering your favorite food into the text box below, and then left click the Okay button to the right of the text box.

Favorite Food: Okay

Then, try using the password text box below. Enter the following password in the text box:

onlineForms

Then, left click the Okay button to the right of the text box.

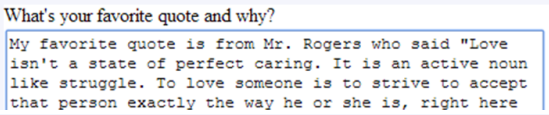
Password: Okay

How to Use Textareas

A **textarea** is similar to a text box. Instead of a single line of text, textareas allow you to enter multiple lines of text. Textareas are used to collect longer pieces of information such as comments, descriptions, journal entries or blog posts, and more.

There are two types of textareas. One type is a plain textarea that allows you to enter text without any special formatting.

Picture 2a. Example Plain Textarea



To use a plain textarea, left click into the textarea, and you will see a blinking cursor. When you start typing, you will see what you typed in appear in the textarea.

Try It Out!

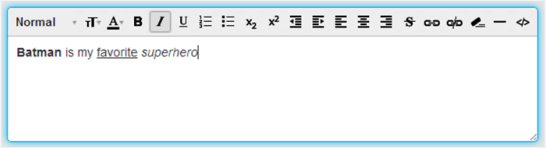
Try out using a textarea by entering what you like to do for fun and why into the textarea below. Then, left click the Okay button to the right of the textarea.

What do you like to do for fun and why?:

Okay

Another type of textarea is a **What You See Is What You Get (WYSIWYG)** textarea. This textarea allows you to apply special formatting to your text like bold, underline, and italicize using the buttons at the top of the textarea.

Picture 2b. This WYSIWYG textarea asks you to enter information regarding your favorite superhero and why. Note the special formatting where Batman is **bolded**, favorite is underlined, and superhero is *italicized*.



Using a WYSIWYG textarea is similar to using a plain textarea but with added formatting features. To bold, underline, italicize, or format the text, first highlight the text you wish to format, and press the correct button near the top of the textarea to select the formatting.

- To **bold**, left click the B button or **B**.
- To underline, left click the U button or U.
- To *italicize*, left click the I button or *I*.

Try It Out!

Try out using a WYSIWYG textbox by entering what you like to do for fun and why into the textarea below and then bold, underline, or italicize any of the words or letters. Then, left click the Okay button.

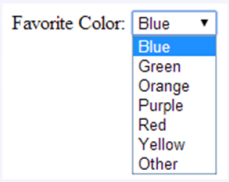
What do you like to do for fun and why?:

Okay

How to Use Drop Down Menus

A **drop down menu** allows you to select an item from a list of items. There are two different kinds of drop down menus. One kind only allows you to choose one item from a list.

Picture 3a. This drop down asks you to select your favorite color.



Try It Out!

Try using this kind of drop down menu by left clicking on the menu and then left clicking on the item or favorite season you wish to select. Then, left click the Okay button.

Favorite Season: Please select a season Okay

Another kind of drop down menu allows you to select many items from the same list.

Picture 3b. This drop down asks you to select your favorite colors.

Try It Out!

Try using this kind of drop down menu by left clicking on the menu, hold the Control key on the keyboard, and left click each item or month in the list you want to select. Then, left click the Okay button.

Favorite Months:

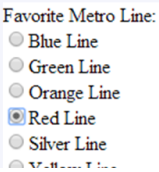
January
February
March
April
Okay

How to Use Radio Buttons

Radio buttons are like multiple choice questions where there is only 1 right answer. You can only select one radio button option out of the set of options. A radio button has two parts:

- The button or circle
- The text describing the value of the button

Picture 4. Radio Buttons



Try It Out!

Try using radio buttons by left clicking the radio button or circle you want to select. Then, left click the Okay button.

What is your favorite national monument?:

- Lincoln Memorial
- Martin Luther King, Jr. Memorial
- Thomas Jefferson Memorial
- Vietnam Veterans Memorial
- Washington Monument
- World War II Memorial
- Other

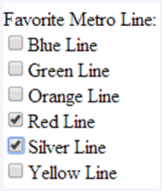
Okay

How to Use Checkboxes

Checkboxes are like multiple choice questions where there can be multiple answers. You can check one or more checkboxes out of the set of checkboxes. Like radio buttons, there are two parts to checkboxes:

- The checkbox itself
- The text describing the value of the checkbox

Picture 5. Checkboxes



Try It Out!

Try using checkboxes by left clicking one or more of the checkboxes you want to select. Then, left click the Okay button.

What are your favorite national monuments?:

- Lincoln Memorial
- Martin Luther King, Jr. Memorial
- Thomas Jefferson Memorial
- Vietnam Veterans Memorial

How to Use Sliders

Sliders help you select from a range of values. Sliders are used for speaker volume when playing music or videos.

Picture 6. The Volume Slider used to control the volume of YouTube videos

Try It Out!

Try using sliders by left clicking the icon and dragging the icon across the slider. Try moving the slider to the left and to the right and watch how the Favorite Number changes below. Then, left click the Okay button to pick a favorite number.

Favorite Number: 50

Okay

How to Use Drag and Drop

Drag and drop helps you move things from one location of a web page to another location.

Try It Out!

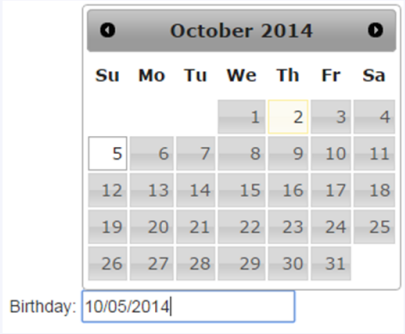
Try using drag and drop by left clicking on the American flag image. Hold the left click and move your mouse over the black rectangle. Then, when your mouse cursor is over the black rectangle, let go of the left mouse click. When you let go, the flag picture will move.

Drag the Flag of the United States Here!

How to Use Date Pickers

Date pickers help you enter dates into form fields. There are many ways to enter dates. One way is through a popup calendar window that appears next to a text box.

Picture 7. Date Pickers



Try It Out!

Try using date picker by left clicking in the text field below. A calendar popup will appear near the text field.

- To choose the day, left click on the day on the calendar.
- To change months, left click the forward and backwards buttons next to the month.

Using the date picker below, enter the date for December 25, 2014. Then, left click the Okay button.

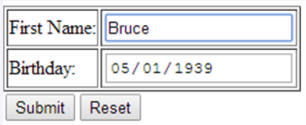
When is Christmas in 2014?: mm/dd/yyyy Okay

How to Use Buttons

You have already used **buttons** as a part of this module, but buttons for forms can play two major roles. Buttons can be used for sending your information to the site. These buttons are often called Save, Submit, Enter, Okay, or Go.

Buttons can also be used to exit out of the form and reset the form. These buttons to exit the form are often called Cancel, Close, or Exit.

Picture 8. Example Form Buttons - the Submit button sends the information to the form, and the Reset button clears all of the information you entered in the form.



Try It Out!

Try using the buttons below for the online form. Left click the Reset button to clear the information from the form.

Left click the Submit button to send the information to the website.

What are your favorite days of the week?

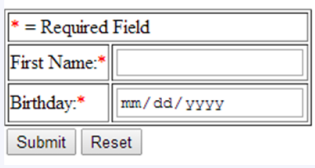
- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

Submit Reset

How Form Validation Works

To submit certain forms, certain fields need to have specific values. Typically, fields that must have values before submitting the form are called **required fields**. Required fields are often labeled with a red asterisk (*).

Picture 9. Required Fields

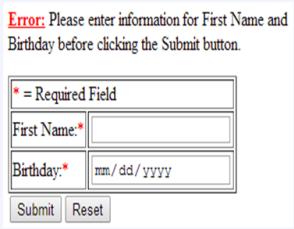


Form fields often require that certain information is entered. For example, if a text box asks you for the year you were born, the text box will likely expect a year like "2014" and not text like "Fear the Turtle". Usually, these fields are not specially labeled.

Picture 10. Specific Fields

When submitting a form without a required field filled in or entering the wrong information into a field, you are usually given an error message telling you which fields were not entered properly.

Picture 11. Error Message



Try It Out!

Try out form validation by fixing the mistakes made by a user trying to submit the form below to create an email account. Make sure to read the error messages at the top of the screen so you know how to fix the errors.

Note: To quickly move between form fields, hover your mouse over the First Name field and left click. Then, to move to the next field, press the **Tab key** on your keyboard.

Error: Please enter information for the following fields: First Name, Last Name, User Account, Password.

* = Required Field

First Name:*

Last Name:*

User Account:* @email.com

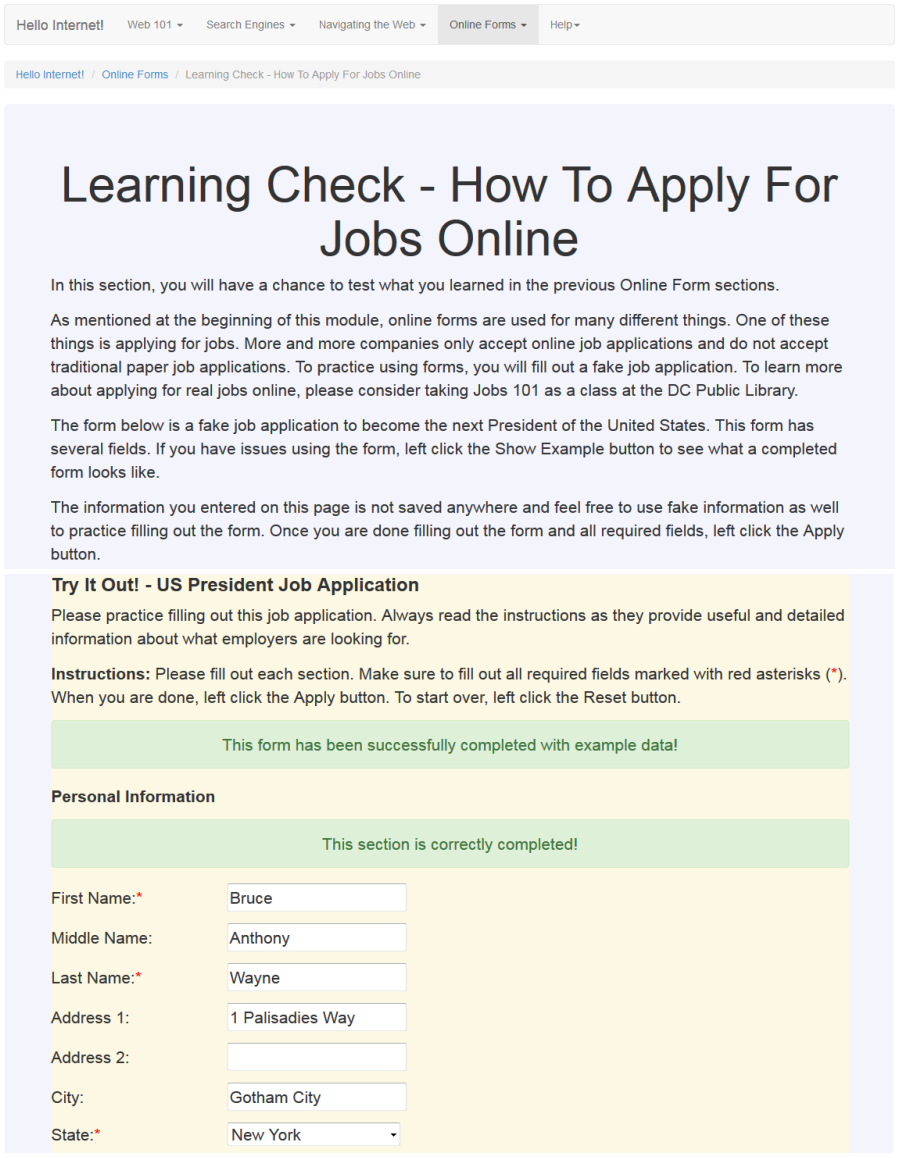
Password:*

Create Email Account Reset

By knowing these common form fields, you are ready to apply your knowledge in a real life example in the next section.

Go Back to What's an Online Form? Continue to Learning Check - How to Apply for Jobs Online

Learning Check – How to Apply for Jobs Online



ZIP Code: 12345

Email Address: bruce.wayne@wayneEr

Primary Phone Number: 123-456-7890

Educational Background

This section is correctly completed!

School 1

School Name:* Gotham University

Major: Criminal Justice

Degree:* Bachelor-Science

GPA: 4

Status:* Graduated Current Attending

School 2

School Name:

Major:

Degree: Please select a degree

GPA:

Status: Graduated Current Attending

Employment History

This section is correctly completed!

Employer 1

Employer Name:* Wayne Enterprises

Job Title:* Chief Executive Officer

Description of Job Responsibilities:*

- Running a global corporation

Start Date:* 05/01/1939

End Date:* mm/dd/yyyy

If you are still employed by this employer, please leave the End Date blank.

Employer 2

Employer Name:

Job Title:

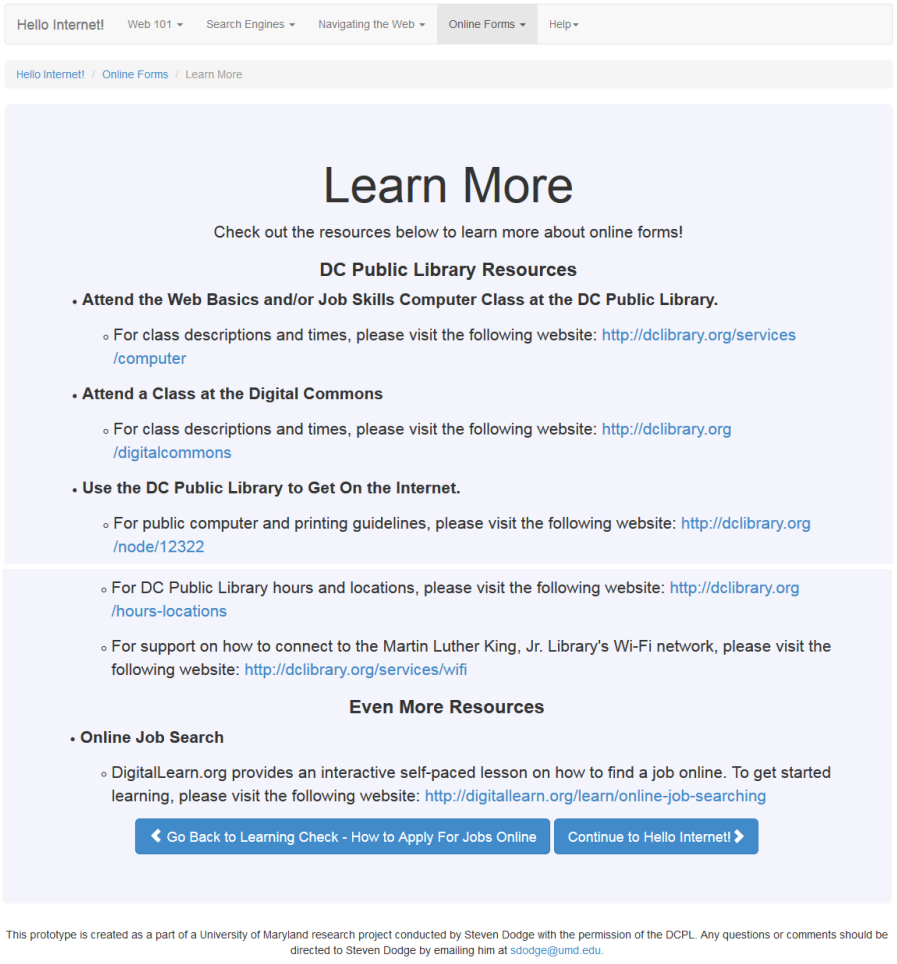
Description of Job Responsibilities:

Start Date: mm/dd/yyyy

End Date: mm/dd/yyyy

If you are still employed by this employer, please leave the End Date blank.

Learn More


Hello Internet!
Web 101
Search Engines
Navigating the Web
Online Forms
Help
Hello Internet! / Online Forms / Learn More
Learn More
Check out the resources below to learn more about online forms!
DC Public Library Resources
Attend the Web Basics and/or Job Skills Computer Class at the DC Public Library.
For class descriptions and times, please visit the following website: http://dclibrary.org/services/computer
Attend a Class at the Digital Commons
For class descriptions and times, please visit the following website: http://dclibrary.org/digitalcommons
Use the DC Public Library to Get On the Internet.
For public computer and printing guidelines, please visit the following website: http://dclibrary.org/node/12322
For DC Public Library hours and locations, please visit the following website: http://dclibrary.org/hours-locations
For support on how to connect to the Martin Luther King, Jr. Library's Wi-Fi network, please visit the following website: http://dclibrary.org/services/wifi
Even More Resources
Online Job Search
DigitalLearn.org provides an interactive self-paced lesson on how to find a job online. To get started learning, please visit the following website: http://digitallearn.org/learn/online-job-searching
Go Back to Learning Check - How to Apply For Jobs Online
Continue to Hello Internet!
This prototype is created as a part of a University of Maryland research project conducted by Steven Dodge with the permission of the DCPL. Any questions or comments should be directed to Steven Dodge by emailing him at sdodge@umd.edu.

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